

Creation-MMBench: Assessing Context-Aware Creative Intelligence in MLLMs

Supplementary Material

A Overview of Tasks in Creation-MMBench

Creation-MMBench consists of four main categories and 51 tasks, as shown in Fig. 8. The Literary Writing category includes 8 tasks, focusing on visual literary creation using images such as photographs, illustrations, and paintings. The Common Functional Writing category comprises 18 tasks, addressing everyday functional creation across various genres and image types. The Professional Functional Writing category contains 19 tasks, focusing on creation tasks that require specific domain knowledge. Finally, the Creative Multimodal Understanding category includes 6 tasks, which involve interpreting implied content from images with rich textual information. For each category, we provide four examples, as illustrated in Fig. 14 - Fig. 29.

B Query and Judge Prompt Template for Creation-MMBench

B.1 Query Template

For each test case, the query is formatted using the template shown in Fig. 30. In Creation-MMBench-TO, we replace visual content with generated descriptions, as no images are provided to the LLM.

B.2 Judge Template

For pairwise comparison, the General Subjective Criteria are essential for a fair assessment. Visual content helps the judge model better understand the predictions and prevents arbitrary conclusions based solely on linguistic strengths. As shown in Fig. 33, the predictions from different models are presented side by side with the criteria to minimize position bias, with instructions also provided to the judging model. Although changing the hypothetical positions helps reduce positional bias, dual evaluation remains necessary. The format restrictions for evaluating model responses facilitate the extraction of the final verdict through regular matching methods.

For Unitary Scoring, we provide Visual Factuality Criteria along with the model’s predictions, the reference answer, and the query, as outlined in Fig. 34. In test cases with a corresponding GroundTruth, this is included to ensure accurate judgment. Each criterion includes several main points, which may be further subdivided into subpoints. The evaluation model scores based on the completeness of these points, with a total score of 10.

C Main Experiment Analysis on Win Rate

In Creation-MMBench, we adopt the MLLM-as-a-judge approach and introduce two metrics, Visual Factuality Score and Reward, to assess the creative capabilities of MLLMs. In this section, we propose a new metric, **Win Rate**, to provide a more comprehensive evaluation of MLLMs’ performance.

C.1 Win Rate Definition

Win Rate is defined as the proportion of instances in which the response generated by the evaluated model surpasses that of the baseline model in the Pairwise Comparison.

C.2 Main results on Win Rate

Tab. 5 presents the Win Rate and detailed judgment counts of MLLMs on Creation-MMBench. Among Proprietary MLLMs, Gemini-2.0-pro-exp demonstrates the best performance in terms of Win Rate, exhibiting the highest number of Much Better and Better cases. In contrast, GPT-4o-mini performs the worst, with only 53 Better cases. Among Open-Source MLLMs, Qwen2.5-VL-72B-Instruct achieves the best performance, with only 42 Much Worse cases. However, most models perform poorly, lacking any Much Better cases. A noticeable performance gap remains between Open-Source and Proprietary MLLMs in terms of Win Rate.

D Advanced Analysis of Creation-MMBench

D.1 Redundancy Analysis

Following the [34], we compute the correlation coefficients between the model evaluation results of Creation-MMBench and other representative objective benchmarks to investigate the redundancy of Creation-MMBench. Fig. 9 presents the Spearman’s Rank Correlation Coefficient (SRCC) and the coefficient of determination (R^2) between the benchmarks. As shown in the figure, Creation-MMBench exhibits a low correlation with MathVista, AI2D, and OCRBench in both SRCC and R^2 . This is likely because these three benchmarks primarily assess objective capabilities such as mathematical reasoning, information extraction, and simple logical inference, with most queries presented in multiple-choice format—an evaluation focus that differs significantly from that of Creation-MMBench.

In contrast, MMMU and MM-Vet show a certain degree of correlation with Creation-MMBench. This may be attributed to the fact that both benchmarks incorporate a portion of creativity-oriented testing, such as the Art & Design

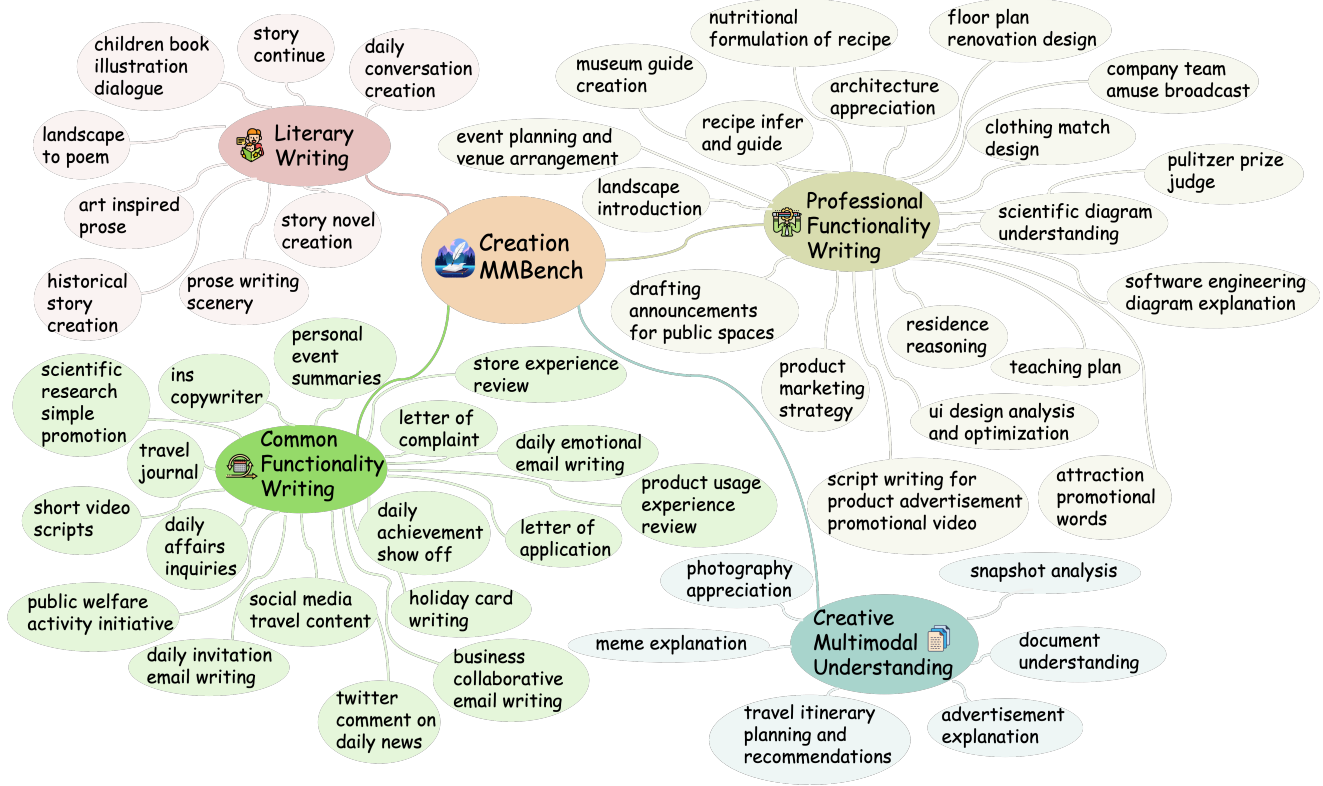


Figure 8. **Overview of Creation-MMBench Complete Task.** Contains four task categories, each category consists of multiple tasks.

section in MMMU-Val and the summarization task in MM-Vet. In general, Creation-MMBench shows low redundancy with existing MLLM Benchmarks, which reflects the novelty and uniqueness of our benchmark.

D.2 Other Statistics

Fig. 10 presents supplementary statistics for Creation-MMBench. As shown in Fig. 10a, we compare the reference answer lengths of Creation-MMBench with four widely used MLLM benchmarks. It is evident that our benchmark exhibits a significantly higher proportion of long answers exceeding 1,500 tokens, which reflects the greater complexity of our tasks. Fig. 10b illustrates the richness of instructions within Creation-MMBench, reflecting the diversity of tasks. The analysis of image categories in Fig. 10c demonstrates the rich visual content incorporated in our benchmark. This diversity ensures a comprehensive evaluation of the model’s perceptual capabilities, further solidifying Creation-MMBench as a rigorous MLLM benchmark.

E Query-Specific Experiments on Creation-MMBench-TO

For Creation-MMBench-TO, the instructions for visual content description are crucial as they are designed to fully

stimulate the model to interpret the content of the image as detailed and rich as possible. To avoid the loss of some fine-grained content caused by generic visual descriptions, which could affect the performance of LLM’s creative ability, we additionally used Query-Specific Instruction generated by GPT-4o to guide the visual description [19].

As shown in Fig. 31, Generic instruction is a standardized, universal instruction aimed at extracting and describing the basic elements present in an image. Query-specific instruction is a combination of generic instruction and incremental instruction that directs the VLM to provide a detailed account of the visual information relevant to the question. The incremental instruction is crafted by the GPT-4o given the text-only question and the few-shot prompt template shown in Fig. 32.

Results on Tab. 6 reveal that query-specific descriptions can help LLMs gain a better understanding of visual content, resulting in a higher Visual Factuality Score and Reward. However, GPT-4o exhibits an inverse trend, which may be because fine-grained descriptions can mislead the attention of the models and may generate too much detailed creative content that does not fully meet the criteria.

Model	VFS	Reward	WR	MB	Better	Tie	Worse	MW	Fail
<i>Proprietary MLLMs</i>									
Gemini-2.0-pro-exp	8.53	4.48	26.75%	9	400	898	163	59	1
GPT-4o-1120	8.72	0.00	-	-	-	-	-	-	-
Gemini-1.5-pro-002	8.41	-5.49	11.37%	6	168	1032	300	24	0
GPT-4.5-0227	8.54	-5.88	5.36%	7	75	1186	255	7	0
GPT-4o-mini	8.07	-13.56	3.79%	5	53	1022	422	28	0
Doubao-VL	8.38	-14.09	9.22%	4	137	850	500	38	1
Claude-3.5-Sonnet	7.96	-15.46	12.55%	4	188	843	321	174	0
Moonshot-v1-32k-vision	7.43	-20.58	6.09%	1	92	822	500	111	4
<i>Open-Source MLLMs</i>									
Qwen2.5-VL-72B-Instruct	8.33	-5.82	13.2%	6	196	984	302	42	0
InternVL2.5-78B-MPO	8.06	-12.55	8.76%	6	128	917	434	45	0
InternVL2.5-8B-MPO	7.65	-15.10	10.33%	0	158	843	438	91	0
InternVL2.5-78B	7.91	-16.43	7.25%	4	107	863	494	62	0
Qwen2-VL-72B-instruct	7.87	-22.45	4.64%	0	71	764	632	63	0
InternVL2.5-8B	7.38	-25.42	5.62%	2	84	699	624	121	0
Qwen2.5-VL-7B-Instruct	7.55	-29.80	4.25%	0	65	620	713	132	0
MiniCPM-o-2.6	7.49	-34.77	2.29%	2	33	545	799	151	0
DeepSeek-VL2	7.24	-38.52	1.77%	0	27	504	791	207	1
LLaVA-OneVision-72B	7.16	-39.87	1.72%	0	26	448	842	194	20
LLaVA-OneVision-7B	6.75	-43.49	1.96%	1	29	411	816	273	0
Qwen2-VL-7B-instruct	7.12	-43.76	1.57%	0	24	402	845	259	0

Table 5. **Win Rate Result of MLLMs on Creation-MMBench.** WR, MB, MW stands for Win Rate, Much Better and Much Worse

LLM	Generic		Query-Specific	
	VFS	Reward	VFS	Reward
GPT-4o-1120	8.71	6.96	8.88	3.33
Qwen2.5-72B-Instruct	8.55	0.82	8.82	4.80
InternLM2.5-7B-Chat	7.83	-22.19	8.33	-15.29

Table 6. **Comparison on Generic Descriptions and Query-Specific Descriptions on Creation-MMBench-TO.**

F Human Alignment

In this section, we provide a detailed examination of Human Alignment, covering the process of pairwise comparison conducted by human evaluators, the definition of the evaluation metrics, and the comprehensive results of Model-Human and Human-Human alignment.

F.1 The process of Human Pairwise Comparison

For human evaluation, We sampled two questions from each task in Creation-MMBench to construct a set of 102 questions. Four volunteers were recruited to perform pairwise comparisons on this question set. Fig. 11 illustrates the user interface used by human evaluators for this task. To mitigate potential bias, we randomized both the order of the questions and the positions of Model A (Gemini-1.5-pro-002, Qwen2-VL-72B, MiniCPM-o-2.6) and Model B (baseline, i.e. GPT-4o-1120)’s responses. Evaluators were provided with the corresponding visual content, related questions, and assessment criteria to compare the quality of the responses presented on the left and right. Their selections were recorded to generate preference results.

F.2 The Definition of MAE and Consistency

Eq (1) and (2) present the metrics used to evaluate the degree of alignment, specifically MAE and Consistency. In

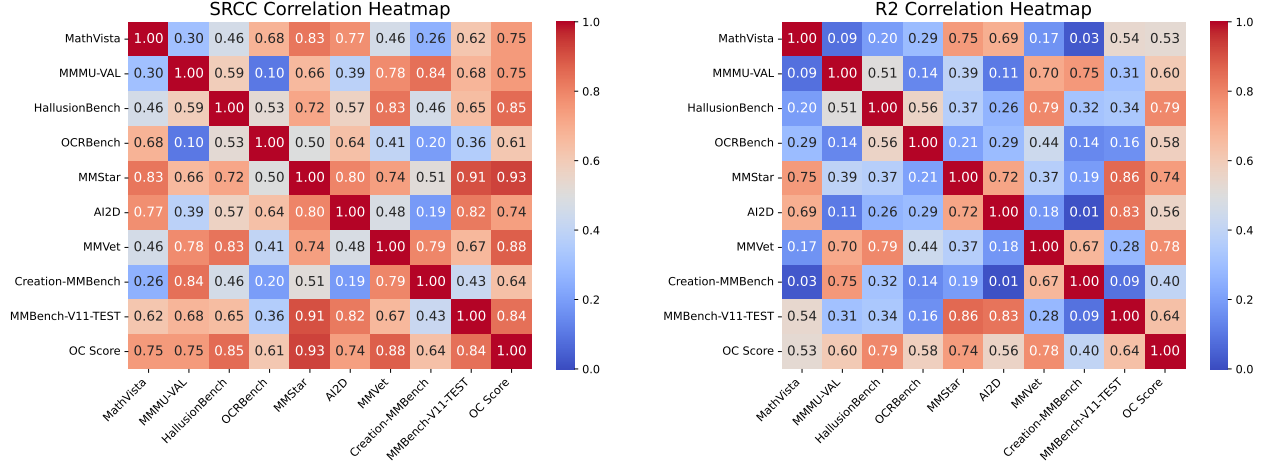


Figure 9. Redundancy Analysis of Creation-MMBench with other widely used MLLM Benchmarks.

these equations, \mathcal{J} represents the pairwise comparison results from a specific judging model or human evaluator, while \mathcal{P} denotes the corresponding reference value (average of human ratings).

$$\text{MAE} = \frac{1}{n} \sum_{i=1}^n |\mathcal{J}_i - \mathcal{P}_i| \quad (1)$$

$$\text{Consistency} = \frac{1}{n} \sum_{i=1}^n \begin{cases} 1, & \text{if } |\mathcal{J}_i - \mathcal{P}_i| \leq 1 \\ 0, & \text{otherwise} \end{cases} \quad (2)$$

F.3 Full Results

We conducted experiments to study both Model-Human Alignment and Human-Human Alignment. For the former, \mathcal{J} refers to the judging model’s comparison result, while \mathcal{P} represents the average human preference. For the latter, \mathcal{J} refers to the comparison result of an individual human, with \mathcal{P} being the average preference of the remaining humans. Tab. 7 presents the detailed alignment results.

It can be observed that for all judging models, MLLM-as-a-judge outperforms LLM-as-a-judge in terms of MAE and Consistency. This may be because the incorporation of visual content allows the judging models to conduct a more comprehensive evaluation. Regarding Human-Human Alignment, human preferences are not highly consistent with one another, which reflects the subjective nature of our benchmark.

G Category Qualitative Case Study

We conducted a qualitative analysis of the common situations that occur in some task categories. Fig. 12 mainly

focuses on the category of Professional Functional Writing. It can be significantly observed that Qwen2.5-VL misjudged the swimlane diagram as a data flow diagram due to insufficient understanding of the domain-specific knowledge, leading to subsequent errors in diagram analysis. In contrast, GPT-4o-1120 effectively avoided this mistake, and its overall language is more professional and structured, demonstrating a more accurate and detailed explanation of the diagram, thus gaining the preference of the judge model. This example also reflects the important role of specific disciplinary knowledge and a detailed understanding of image content in this category of tasks.

For Creative Multimodal Understanding tasks, as shown in Fig. 13, both models gain full scores in visual factuality and exhibit similar performance in basic visual content understanding and information extraction. However, GPT-4o-1120 gives a more comprehensive plan with clear scheduling and reasonable arrangement, thus winning the preference of the judging model.

Dataset

question2.tsv


Question Index (Press Enter)

41

Next

153 questions in total.

Your Choice: no answer



INDEX: 39

QUESTION: Assume you are a key member of the media publicity team for a government public welfare campaign, skilled at using words to inspire more people to participate in charitable causes.

Please follow the requirements below to write a message based on this image to encourage everyone to join this public welfare activity. 1.A clear, concise, and engaging slogan needs to be designed to capture the public's interest and effectively convey the key message. 2.A promotional message about the public welfare activity depicted in the image is required, including but not limited to an introduction to the activity, its importance, and a call for public participation.

TASK_NAME: public_welfare_activity_participation_initiative

CRITERIA: 1. Completeness and Clarity 1.1 Is the slogan clear and direct, effectively conveying the main message of the given image (i.e. a group of volunteers working together to plant a tree in a park)? 1.2 Is the promotional message clear and complete, including an introduction to the public welfare activity depicted in the image, its importance, and a call for public participation? 2. Innovation and Persuasiveness 2.1 Is the slogan innovative and engaging, immediately grabbing the readers' attention and sparking their interest? 2.2 Is the tone of the message positive and persuasive, inspiring readers to feel motivated to participate?

Slogan: Plant a Tree, Plant a Future. Join Us!

Promotional Message:

The image you see captures the spirit of community and hope. These volunteers are taking part in a vital tree-planting initiative, contributing to a greener, healthier future for all. Every sapling planted represents a breath of fresh air, a step towards combating climate change, and a commitment to enriching our environment.

Trees are the lungs of our planet. They provide us with oxygen, shade, and beauty. They help prevent soil erosion, conserve water, and support a diverse ecosystem. By planting trees, we're not just beautifying our surroundings; we're investing in the well-being of future generations.

This isn't just about digging holes and placing saplings in the ground. It's about coming together as a community, working towards a common goal, and making a tangible difference. Whether you're young or old, experienced or a novice, every helping hand is valuable.

Join us for our next tree-planting event! No experience is necessary, just a willingness to get your hands dirty and make a positive impact. Together, we can plant a future filled with clean air, vibrant landscapes, and a sustainable environment for all. Contact us today to learn how you can get involved. Let's make our world a greener place, one tree at a time!

Slogan:

"Plant a Tree, Grow a Future!"

Promotional Message:

Join hands with us in making a greener, healthier world! This tree-planting initiative is more than just an activity—it's a commitment to protecting our environment, combating climate change, and creating a sustainable future for generations to come.

Every tree planted contributes to cleaner air, cooler cities, and a thriving ecosystem. Together, we can make a difference! Whether you're a seasoned environmentalist or just starting your journey in giving back to nature, your participation matters.

Grab a shovel, bring your enthusiasm, and let's grow a forest of hope together! Volunteer today and be a part of this meaningful cause. Together, we can nurture the earth and inspire others to do the same.

Act now—because the best time to plant a tree was 20 years ago. The second-best time is today!

Left>>Right

Left>Right

Left=Right

Left<Right

Left<<Right

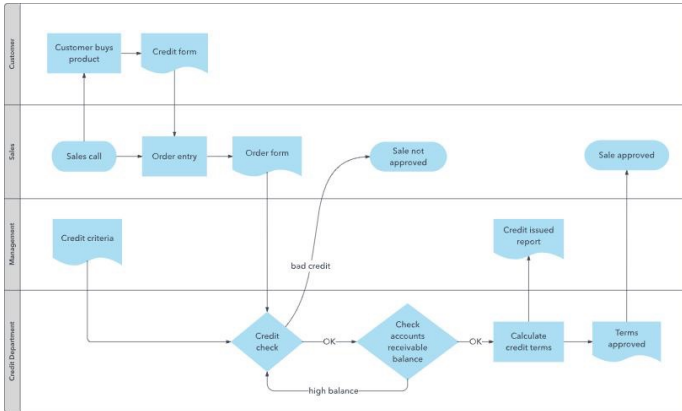
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Figure 11. The Process of Human Pairwise Comparison.

Judging Method	Judging Model/Human	MLLM	Dual Evaluation				Non-Dual Evaluation			
			MAE↓		Consistency↑		MAE↓		Consistency↑	
LLM-as-a-judge	Gemini-2.0-Pro	Gemini-1.5-pro-002	0.67		83.17		0.75		77.23	
		Qwen2-VL-72B	0.59	0.62	84.16	84.16	0.65	0.69	78.22	79.21
		MiniCPM-o-2.6	0.61		85.15		0.67		82.18	
	GPT-4o-mini	Gemini-1.5-pro-002	0.67		83.17		0.79		74.26	
		Qwen2-VL-72B	0.59	0.59	85.29	86.23	0.67	0.71	76.47	77.38
		MiniCPM-o-2.6	0.52		90.20		0.66		81.37	
	Claude-3.5-Sonnet	Gemini-1.5-pro-002	0.63		89.11		0.73		78.22	
		Qwen2-VL-72B	0.46	0.52	94.12	91.80	0.58	0.63	82.35	81.97
		MiniCPM-o-2.6	0.46		92.16		0.58		85.29	
	GPT-4o	Gemini-1.5-pro-002	0.56		93.07		0.56		90.10	
		Qwen2-VL-72B	0.46	0.51	92.16	91.48	0.54	0.56	87.25	87.54
		MiniCPM-o-2.6	0.51		89.22		0.58		85.29	
MLLM-as-a-judge	Gemini-2.0-Pro	Gemini-1.5-pro-002	0.65		82.83		0.78		74.75	
		Qwen2-VL-72B	0.51	0.59	91.00	86.67	0.67	0.72	80.00	78.67
		MiniCPM-o-2.6	0.61		86.14		0.69		81.19	
	GPT-4o-mini	Gemini-1.5-pro-002	0.64		84.16		0.71		76.24	
		Qwen2-VL-72B	0.53	0.55	93.14	89.51	0.65	0.66	82.35	80.33
		MiniCPM-o-2.6	0.49		91.18		0.61		82.35	
	Claude-3.5-Sonnet	Gemini-1.5-pro-002	0.56		89.90		0.61		83.84	
		Qwen2-VL-72B	0.46	0.50	92.00	90.60	0.59	0.59	85.00	85.23
		MiniCPM-o-2.6	0.47		89.90		0.57		86.87	
	GPT-4o	Gemini-1.5-pro-002	0.53		92.08		0.57		89.11	
		Qwen2-VL-72B	0.42	0.50	96.08	92.13	0.46	0.54	91.18	88.85
		MiniCPM-o-2.6	0.53		88.24		0.59		86.27	
Human-as-a-judge	H1	Gemini-1.5-pro-002	/		/		0.65		84.16	
		Qwen2-VL-72B	/	/	/	/	0.60	0.64	90.20	87.21
		MiniCPM-o-2.6	/		/		0.66		87.25	
	H2	Gemini-1.5-pro-002	/		/		0.82		74.26	
		Qwen2-VL-72B	/	/	/	/	0.72	0.75	82.35	78.69
		MiniCPM-o-2.6	/		/		0.73		79.41	
	H3	Gemini-1.5-pro-002	/		/		0.74		76.24	
		Qwen2-VL-72B	/	/	/	/	0.62	0.68	80.39	82.30
		MiniCPM-o-2.6	/		/		0.72		90.20	
	H4	Gemini-1.5-pro-002	/		/		0.64		87.13	
		Qwen2-VL-72B	/	/	/	/	0.61	0.63	89.22	87.87
		MiniCPM-o-2.6	/		/		0.65		87.25	

Table 7. The Results of Model-Human Alignment and Human-Human Alignment.

Question



Assume you are an experienced software development engineer,....
This is a software engineering diagram that you encounter in your work.
Please follow the requirements below to draft a document to ensure that ... can understand the type of diagram, the business process, and the division of work after reading it.
1. Ensure the document is concise and clear.
2. The document should clearly specify the type of diagram, its purpose, and the stage in software engineering where it is typically used.

Assistant A

1. The diagram shown is a **Swimlane Diagram**, a type of ...
It visually **represents a business process by dividing it into lanes**, where each lane corresponds to a specific role, ...
2. **Purpose of the Diagram:** The purpose of this Swimlane Diagram is to: Illustrate the flow of a business process: It shows how tasks and decisions move between different roles or departments. Clarify responsibilities: Each lane represents a ...
3. **Stage in Software Engineering:** This diagram is typically used during the **Requirements Analysis or System Design stage of software engineering**. It helps: Understand the current ...
4. **Explanation of the Business Process:** The diagram represents a credit approval process for a customer purchasing a product. Below is a step-by-step explanation: Roles/Departments ...
6. **Key Takeaways:** This Swimlane Diagram provides a clear, visual representation of the credit approval process. By following this document, even a beginner can understand the purpose, structure, and workflow depicted in the diagram.

Assistant B

1. ... The diagram is a **Data Flow Diagram (DFD)**.
2. Business Process Illustrated: This specific DFD illustrates the **credit approval process for a sales transaction**. Here's a **step-by-step breakdown of the process**: 1. Customer buys product: The process begins when a customer decides to buy a product. 2. Credit form: The customer fills out a credit form, which is then sent to the sales department. ...
3. **Division of Work:** The DFD also shows how the work is divided among different departments:
- ****Customer:**** Initiates the process by buying a product and filling out a credit form.
- ****Sales Department:**** Handles the sales call, order entry, and order form creation. ...
By following this DFD, each department knows its role and responsibilities in the credit approval process, ensuring a smooth and efficient workflow.

Evaluation : A Much Better Than B

Assistant A **correctly identifies the diagram as a Swimlane Diagram, which is accurate based on the image**. The response is **clear and concise, making it accessible to beginners**. It **effectively explains** the purpose of the diagram, highlighting its role in illustrating business processes, clarifying responsibilities, and identifying dependencies. The document also **accurately places the diagram** in the Requirements Analysis or System Design stage of software engineering, which is appropriate. The explanation of the business process is **detailed and aligns well with the image**, covering the roles involved and the flow of tasks. The language is **professional and structured**, suitable for both technical and non-technical readers.

Assistant B Evaluation:
Assistant B **incorrectly identifies the diagram as a Data Flow Diagram (DFD)**, which does not align with the image. This misidentification affects the clarity and accuracy of the response. While the explanation of the business process is detailed, it is based on the incorrect assumption of the diagram type. The response **does cover the division of work and provides a step-by-step breakdown**, but the initial error in identifying the diagram type undermines the overall quality. The language is clear and professional, but the **misidentification impacts the completeness and accuracy of the document**.

Figure 12. **Qualitative Case in Professional Functional Writing.** This case comes from Software Engineering Diagram Explanation Task, Assistant A is GPT-4o-1120, assistant B is Qwen2.5-VL-72B.

Question



Assume you are an experienced and well-reputed tour guide can flexibly customize travel plans ... This is a map marked with popular attractions. The travelers you are about to host are art and architecture enthusiasts who are eager to explore Gaudí's masterpieces.....

... design a 2-day travel plan based on the provided map and the travelers' preferences. 1. The plan should include the detailed schedule 2. It is necessary to select some representative attractions

Assistant A



2-Day Travel Plan for Art and Architecture Enthusiasts in Barcelona.

This 2-day itinerary is designed to immerse travelers in the architectural wonders of Antoni Gaudí, the vibrant street life of Barcelona, and the rich Catalan culture. The plan prioritizes efficiency, cultural depth, and flexibility. **Day 1:** Gaudí's Masterpieces and Catalan Culture Morning: La Sagrada Familia is Gaudí's most iconic workSpecial Considerations: Book tickets online in advance to avoid long queues. Opt for a guided tour to understand the symbolism behind the design.

Day 2: Las Ramblas, Gothic Quarter, and La Pedrera Morning: Las Ramblas and Gothic Quarter (Stops 1 and 2 on the map) ...

Additional Notes: Transportation: Flexibility: ... Souvenirs: Pick up unique gifts like Gaudí-inspired ceramics or Catalan wines from local shops.

Assistant B



2-Day Travel Plan for Art and Architecture Enthusiasts in Barcelona

Day 1: Gaudí's Masterpieces and Gothic Quarter

Morning:: **La Sagrada Familia (Attraction 4)**

Reason for Selection:** One of Gaudí's most iconic works...

Afternoon:: **Lunch in the Gothic Quarter**

Reason for Selection: The Gothic Quarter is known for its narrow medieval streets and is a great place to enjoy local Catalan cuisine.

Day 2: Modernist Architecture and Local Experiences:

Morning:: **Park Güell (Attraction 3)**

Reason for Selection: Another iconic Gaudí landmark, Park Güell offers a unique blend of architecture and nature.

Summary

This 2-day travel plan is designed to cater to the travelers' interests in art, architecture, and local ...

Evaluation : A Better Than B

Assistant A's ... Score: **10/10**

Assistant A Evaluation: The plan is **clear and well-structured**, with specific times and activities outlined for each day. It ... **providing essential details about each attraction.**\n\n2. Efficiency and Comfort: The itinerary is **efficiently planned**, with attractions grouped by proximity to minimize travel time. Sufficient buffer time is included between activities, ensuring a relaxed pace. ...

Assistant A provides a **more comprehensive and well-organized itinerary**, with **clear scheduling and detailed background information**. The plan is **efficient and diverse, aligning closely with the travelers' interests**.


Assistant B's ... Score: **10/10**


Assistant B Evaluation: The plan is clear, with a detailed schedule and descriptions of each attraction. ... **some details are less comprehensive than Assistant A's.**\n - Background information is generally concise **but could be more detailed in some areas.**

2. Efficiency and Comfort: ... logically organized, with attractions planned to minimize travel time. However, ... **might not be optimal given their locations** ...

Assistant B's response is also strong but **slightly less detailed and efficient in terms of travel route optimization.**

Figure 13. **Qualitative Case in Creative Multimodal Understanding.** This case comes from Travel Itinerary Planning and Recommendations Task, Assistant A is GPT-4o-1120, assistant B is InternVL2.5-78B.




 **Role:** Talented children's animation creators have a profound insight into the story plot and a unique understanding of the picture content, and have the ability to continue to narrate and complete a wonderful story according to the content of the previous foreshadows.

Background: These are the first few scenes of the children's animation: A group of dinosaur friends is exploring deep inside a cave.

Instruction: Continue the story with a natural expansion of the plot or characters.

Requirements:

- 1.Ensure the story is clear, logically connected, and continues from existing content to form a complete, cohesive narrative;
- 2.Make the narration vivid and engaging through detailed descriptions and realistic dialogue
3. Keep characters true to their original personalities while allowing for meaningful growth
4. Introduce new, coherent challenges that naturally drive the story forward.

 **General Subjective Criteria:**


1. Ensure the continuation is cohesive and logically connected:
 - 1.1 Maintain a consistent plot that builds naturally from existing story elements.
 - 1.2 Ensure smooth and logical transitions between scenes or events.
2. Use vivid descriptions and realistic dialogue:
 - 2.1 Descriptions Include sensory details to bring the setting and actions to life.
 - 2.2 Write dialogue that reflects characters' personalities and advances the plot.
3. Maintain the original tone and style:


Match the original tone and style throughout the continuation. Avoid abrupt shifts in tone unless justified by the story.
4. Keep characters consistent and evolving:
 - 4.1 Stay true to characters' established traits and motivations.
 - 4.2 Show character growth through their actions and decisions rather than exposition.
5. Introduce new challenges that drive the plot forward:
 - 5.1 Align challenges with the story's themes and the characters' goals.
 - 5.2 Ensure challenges are resolved in ways that contribute to character development or plot progression

Visual Factuality Criteria:

1. Key Points for Continuity and Plot Connection
 - 1.1 In the previous storyline, the main characters consisted of a group of dinosaur companions (a yellow triceratops, a brown apatosaurus, a dark green stegosaurus, a purple-gray tyrannosaurus, and two dinosaurs(i.e. one pink and one light green). Does the continuation retain these characters to ensure a smooth transition in the plot?
 - 1.2 In the previous storyline, this group of dinosaur companions was deep inside a cave. Does the continuation connect with this environmental setting?
 - 1.3 In the previous storyline, the group of dinosaur companions worked together to successfully remove a giant boulder blocking their way. Does the continuation build on this scene and use it to introduce subsequent challenges?

Figure 14. Example Case of Literary Writing, from Task story continue.




 **Role:** an experienced screenwriter, who likes to make up a conversation between two people and write about the emotions, language, communication information and speaking style that they would express during the conversation.

Background: This is a scene photo about two people talking.

Instruction: Write a conversation about two people talking face to face.


Requirements:


- 1.Role positioning: Combine pictures to clearly define the identities of two people, such as friends, colleagues or lovers, so as to make the dialogue more authentic and believable.
- 2.Scene association: Design the corresponding dialogue content according to the scene where the characters are. For example, in a corporate scenario, work or business issues can be discussed; In a school setting, topics related to learning may be involved.
- 3.Emotional expression: The dialogue should show the emotional interaction between the characters, such as pleasant conversation, banter, or in-depth discussion of a common topic.
- 4.Add details: Integrate more details into the dialogue to make the content richer and more vivid and increase the sense of reality.
- 5.Dialogue style: According to the relationship and interaction of characters, highlight the dialogue style to make the communication more personal and emotional depth.

 **General Subjective Criteria:**

1. Character Definition
 - 1.1 The dialogue should clearly indicate the identity of the two characters (i.e. an elderly couple). This can be seen through language, salutation and interaction.
 - 1.2 Interactions in dialogue should be consistent with the identity of the person.
2. Context relevance
 - 2.1 The topics discussed should fit the context (i.e. Walking the dog in the park).
 - 2.2 Dialogue should cleverly combine elements in the scene (such as trees, benches, and other things) with content to make the dialogue more immersive.
3. Emotional expression
 - 3.1 Dialogue should clearly express the emotional interactions between the characters.
 - 3.2 The expression of emotion should be consistent with the atmosphere of the scene (i.e. Chatting while walking the dog in the park).
4. Conversational style
 - 4.1 Dialogue should be relaxed and natural, avoid obtrusive or blunt. It should conform to the communication style of life, without being too formal or pretentious.
 - 4.2 Dialogue should fully show the relationship between the characters through the interaction, so that the dialogue is more realistic and emotional depth.

Figure 15. Example Case of Literary Writing, from Task daily conversation creation.




 **Role:** A poet who is good at feeling emotions and artistic conception from the picture, and sublimating the content of the picture and writing sonnets, and controlling the rhyme in place.

Background: Here is an image of landscape that conveys certain feelings and artistic conception of the picture.

Instruction: Write a sonnet.

Requirements:

- 1.The rhyme scheme and meter must follow the classical sonnet form.
- 2.The content of the sonnet must accurately reflect the scene, subject, and elements within the image.
- 3.The poem should convey the visual elements and artistic conception of the image, expressing the intended mood and theme of the picture.
- 4.Express the emotional depth of the image, using abstract or symbolic language to evoke the feelings intended by the painter.
- 5.Ensure a coherent and unified progression, with smooth transitions between stanzas, building from description to reflection.
- 6.Use vivid imagery, symbolism, and figurative language to create a sensory experience that brings the picture to life.

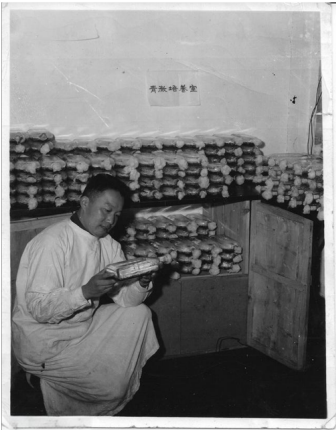
 **General Subjective Criteria:**


1. Adherence to Artistic Conception and Emotional Depth
 - 1.1 Does this sonnet further convey emotions and themes through the description of visual elements in the imagery(Two people fishing on a platform)?
 - 1.2 Does the poem evoke the emotional depth of the image through abstract or symbolic language?
2. Coherence and Progression
 - 2.1 Does the sonnet maintain a clear and unified structure, with smooth transitions between stanzas?
 - 2.2 Does the progression build logically from vivid description to deeper reflection or insight?
3. Use of Imagery and Figurative Language
 - 3.1 Does the sonnet incorporate vivid imagery and sensory details to bring the picture to life for the reader?
 - 3.2 Are symbolism and figurative language (e.g., metaphor, simile, personification) effectively used to deepen the artistic expression?
4. Poetic Elegance and Impact
 - 4.1 Is the language elegant and precise, demonstrating control of poetic style and form?
5. Emotional and Artistic Conception
 - 5.1 Does the poem evoke the peaceful, poetic mood of the painting?
 - 5.2 Does the sonnet convey the themes of simplicity and harmony with nature?

Visual Factuality Criteria:

1. Accurate Depiction of Visual Elements
 - 1.1 Does the sonnet capture the tranquil scene, including the fishermen, fishing platform, fishing rod, and a willow tree?
 - 1.2 Does the poem address the two fishermen and their activity in a detailed manner?

Figure 16. Example Case of Literary Writing, from Task landscape to poem.




 **Role:** a renowned writer known for uncovering the emotions and potential stories behind old photographs, narrating them in a compelling and touching manner that captivates your audience.

Background: The photo was taken in 1944 at the Central Epidemic Prevention Office in Xishan, located in Kunming, Yunnan Province.

Instruction: Write a story based on this photo.

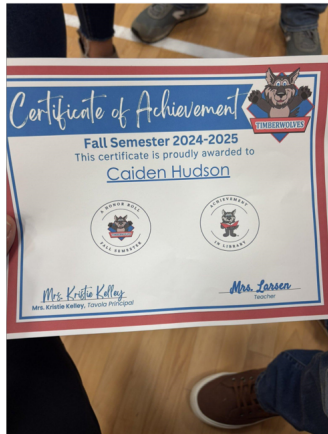
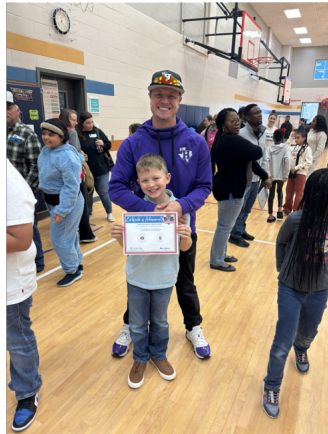
Requirements:

- 1.Incorporate the historical context of the time, imagining and detailing the life experiences or events of the people in the photograph, giving the photo greater narrative depth.
- 2.The story can be written in the first or third person, allowing readers to immerse themselves and feel the emotions conveyed by the person in the image.
- 3.The story must have a strong connection to the photo, using the image as a starting point or anchor for the narrative.
- 4.The story should have an engaging title that aligns with the content of the narrative.

 **General Subjective Criteria:**

- 1.Historical Context
 - 1.1 Does the story reflect 1944 Kunming and the context of epidemic prevention?
 - 1.2 Does it connect the characters to the historical setting of medical advancements?
- 2.Emotional Engagement
 - 2.1 Does it show the character's dedication and purpose?
 - 2.2 Does it immerse readers in the significance of the work?
- 3.Connection to Photograph
 - 3.1 Does it use the photograph's details, such as penicillin and epidemic prevention efforts?
 - 3.2 Does it expand the narrative without straying from the photo's context?
- 4.Title
 - 4.1 Is the title engaging and reflective of the story's focus?

Figure 17. Example Case of Literary Writing, from Task historical story creation.



Role: a primary school student.

Background: This is a series of images from the event where I received an honor certificate.

Instruction: Help me write a Facebook summary about this event.

Requirements:

1. Describe the process of participating in the award ceremony and the unforgettable moments.
2. Share your reflections on receiving this honor.
3. Let others know the significance of this honor, as well as the achievements and experiences you gained during your studies.




General Subjective Criteria:

1. Event Details (Receive the Certificate of Achievement for being on the Honor Roll and excelling in the library) and Learning Points
 - 1.1 Does the response clearly and engagingly narrate the process of participating in the award ceremony and the unforgettable moments?
 - 1.2 Does it highlight the key learning experiences and personal growth gained from the event?
2. Motivation and Inspiration
 - 2.1 Does the summary help others understand the significance and purpose of receiving this honor?
 - 2.2 Does it help others understand your achievements and contributions?

Visual Factuality Criteria:

1. Accuracy in Event Portrayal
 - 1.1 Does the post accurately reflect the award ceremony and the achievements (an honor roll and achievement in library during the Fall Semester of 2024-2025)?
2. Consistency with Provided Details
 - 2.1 Does the post align with the celebratory tone and reflective mood associated with the award ceremony?

Figure 18. Example Case of Common Functional Writing, from Task daily achievement show off.



Role: a world traveler.

Background: You went to this particular city, Instagrammable Krakow (Poland) , and this is what you saw.

Instruction: Write a reddit post with these pictures, title "Instagrammable Krakow (Poland)".

Requirements:

- 1.Combine the picture content to show the beautiful scenery of Instagrammable Krakow (Poland).
- 2.Attract other user to reply.

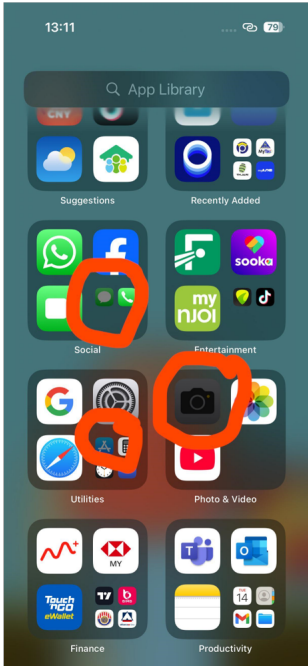
General Subjective Criteria:

- 1.Engagement and Persuasiveness
 - 1.1 Does the post effectively attract readers by vividly describing Instagrammable Krakow's diverse landscapes as shown in the images?
 - 1.2 Are the descriptions emotionally engaging, making readers curious or inspired to visit Instagrammable Krakow?
2. Clarity and Structure
 - 2.1 Is the post well-organized, with clear and concise transitions?
 - 2.2 Does the tone and language match the informal and interactive style of Reddit posts to encourage responses from other users?

Visual Factuality Criteria:

1. Relevance to the picture
 - 1.1 The review effectively integrates the iconic scenery of Krakow, Poland, particularly showcasing the historic architecture and vibrant square, with St. Mary's Basilica in the background.
 - 1.2 The features of these attractions, such as the beautiful old town, the distinct Gothic architecture, and the lively atmosphere in the square with people walking and enjoying ice cream, are accurately reflected in the image.
2. Relevance to prompt target
 - 2.1 The description focuses on promoting the beauty of Krakow, specifically highlighting the charm of its historic square and cultural landmarks.
 - 2.2 These descriptions encourage engagement by inviting readers to share their experiences of Krakow or suggest other picturesque places to visit.

Figure 19. Example Case of Common Functional Writing, from Task social media travel content.



Role: an experienced Reddit post creator seeking help and guidance.

Background: There is a problem while transferring data from the iPhone 12c to the newly purchased iPhone 16 Pro.

Instruction: Identify what the problem is based on this image and write a Reddit post asking for help.

Requirements:

- 1.The post needs a concise title that clearly summarizes the problem.
- 2.The post should include tags closely related to the problem to increase the likelihood of it being seen or answered.
- 3.The post requires a detailed body to provide more information for potential responders.

General Subjective Criteria:

1. Clarity and Relevance
 - 1.1 Does the post title clearly and concisely summarize the problem?
 - 1.2 Is the body of the post detailed enough to provide context and explain the issue, while remaining focused and avoiding unnecessary information?
2. Engagement and Tone
 - 2.1 Is the tone of the post sincere, humble, and inviting enough to encourage readers to offer help?
 - 2.2 Does the post use relatable language and structure to make it approachable and easy to engage with?

Visual Factuality Criteria:

1. Key Points
 - 1.1 Has the background of the problem been explained, i.e. it occurring during the migration of data from iPhone 12c to iPhone 16 Pro?
 - 1.2 Has the problem been accurately described, specifically that App Store, Camera, and Messages are freezing or unresponsive?
 - 1.3 Are the tags in the post accurate, including at least one of Apple, iOS, or iPhone?

Figure 20. Example Case of Common Functional Writing, from Task daily affairs inquiries.

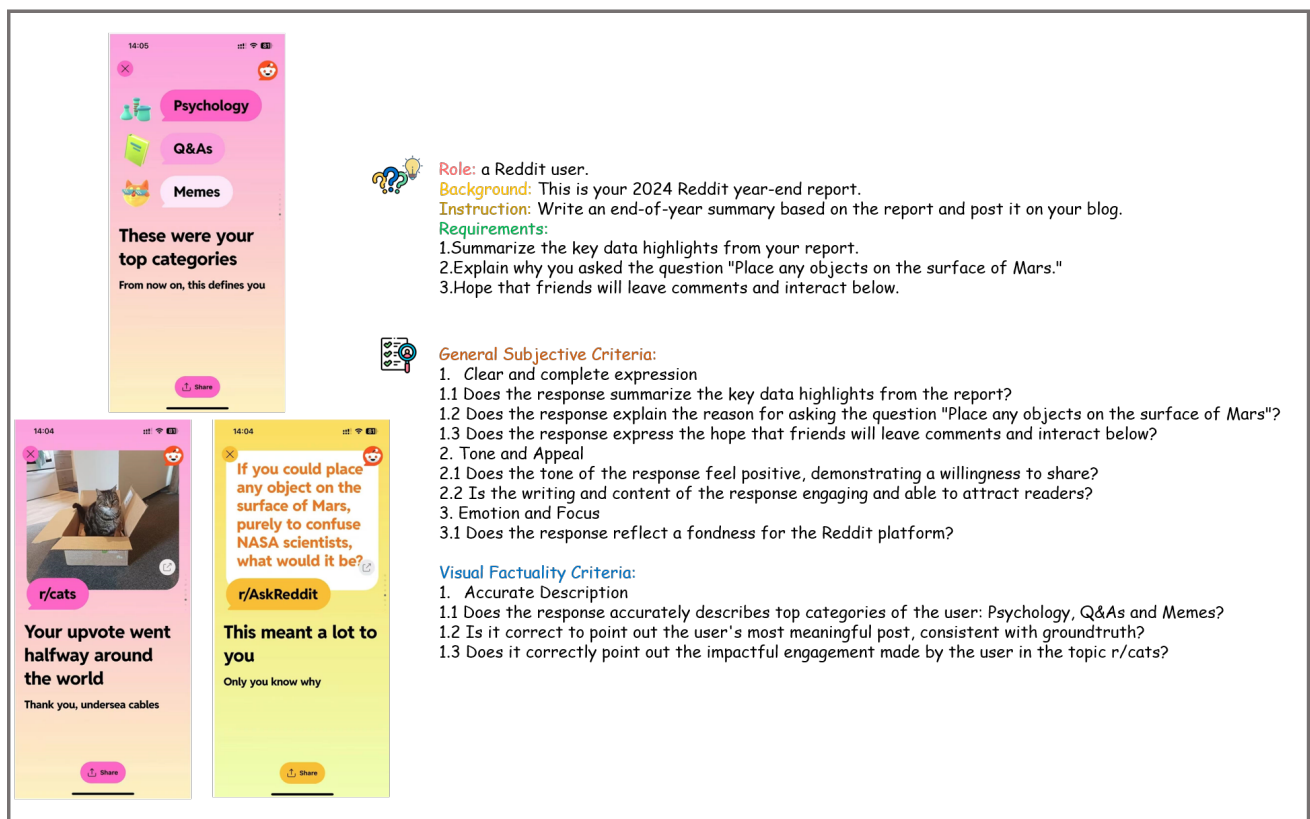


Figure 21. Example Case of Common Functional Writing, from Task personal event summaries.

▼ 4	Cell Structure
	Introduction
4.1	Studying Cells
4.2	Prokaryotic Cells
4.3	Eukaryotic Cells
4.4	The Endomembrane System and Proteins
4.5	The Cytoskeleton
4.6	Connections between Cells and Cellular Activities
	Key Terms
	Chapter Summary
	Visual Connection Questions
	Review Questions
	Critical Thinking Questions



Role: a highly experienced senior teacher specialized in creating tailored teaching plans based on key knowledge points to suit the needs of different students.

Background: Here is a set of image materials from the biology textbook. The first image shows the chapter corresponding to the current teaching progress, with the bold underlined section indicating the lesson that needs to be prepared. The remaining images contain formulas, diagrams, example problems, and other content from this lesson, given according to the teaching sequence in the textbook.

Instruction: Develop an appropriate teaching plan for the lesson that needs preparing based on the given image materials.

Requirements:

1. A clear and concise teaching objective is required.
2. It is necessary to specify how the lesson should be divided into different sections and outline the specific content of each section.
3. Assuming a class duration of 45 minutes, provide the total number of lessons and the time allocation for each section.
4. Expansion is allowed, and is not limited to the image materials provided in the textbook.
5. Consider whether differentiated instruction is needed, such as extending knowledge for more advanced students.

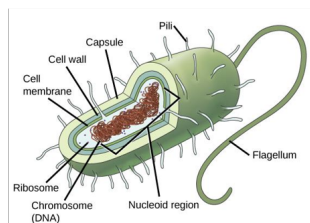


Figure 4.5 The figure shows the generalized structure of a prokaryotic cell. All prokaryotes have chromosomal DNA localized in a nucleoid, ribosomes, a cell membrane, and a cell wall. The other structures shown are present in some, but not all, bacteria.

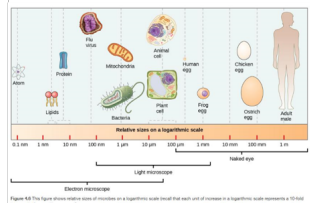


Figure 4.6 The figure shows relative sizes of molecules in a logarithmic scale. Recall that each unit of increase in a logarithmic scale represents a 10-fold increase in the quantity measured.

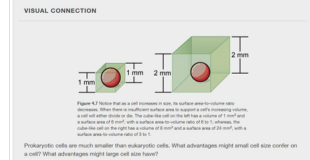



Figure 4.7 Notice that as a cell increases in size, the surface area to volume ratio decreases. When there is insufficient surface area to support a cell's increasing volume, a cell will either divide or die. This idea is illustrated in the left box: a cube of 1 mm³ and a surface area of 6 mm² is divided into 1,000 smaller cubes, each 1 mm³. On the right, the same 1 mm³ cube is shown as a single cube with a surface area of 6 mm², but with a volume-to-surface ratio of 1:1.




General Subjective Criteria:

1. Clarity and Completeness
 - 1.1 Does the teaching plan include clear and concise teaching objectives? Do these objectives reflect the core knowledge points of the given course (i.e. 4.2 prokaryotic cells)?
 - 1.2 Is the lesson divided into multiple sections? Is the division logical and does it support a step-by-step teaching progression? Are the contents of each section described in detail?
 - 1.3 Is there an overall time allocation along with detailed time allocations for each section? Is the time allocation feasible and aligned with practical teaching requirements?
 - 1.4 Are differentiated teaching strategies considered? Are the arrangements for students of different levels appropriate?
2. Logic and Accuracy
 - 2.1 Does the plan avoid basic errors, such as discrepancies where the total time does not equal the sum of the time allocated for each section?
 - 2.2 Does the plan maintain logical consistency and avoid confusion or disorganization?
3. Utilization of Given Image Materials
 - 3.1 Does the plan incorporate the given image materials (Figure 4.5: Structure of a prokaryotic cell, Figure 4.6: Sizes of different microbes, Figure 4.7: Visual connection, etc.) into the teaching plan?

Figure 22. Example Case of Professional Functional Writing, from Task teaching plan.






Role: a head of a cosmetics marketing department, skilled at developing corresponding marketing strategies based on the characteristics of each region and each cosmetic product, ensuring that the products sell well.

Background: The image shows the products you need to promote to the Asia-Pacific region this quarter.

Instruction: Develop a marketing strategy for this product and write a promotional copy.

Requirements:

1. Marketing strategies need to include key points such as pricing strategy, target audience, advertising channels, core advantages, and whether time-limited discounts are necessary.
2. Marketing strategies need to be oriented towards relevant users in the target area, formulated based on their pain points and needs, with rationale and in line with regional characteristics.
3. The promotional copy needs to be concise and sufficiently highlight the core selling points of the product, so that users are willing to purchase it.




General Subjective Criteria:


1. Richness and Relevance of Marketing Strategy
 - 1.1 Does the strategy effectively address key elements (pricing, target audience, advertising channels, core advantages, time-limited discounts) as required?
 - 1.2 Is the strategy tailored to the Asia-Pacific region, considering users' pain points, cultural preferences, and purchasing behaviors?
 - 1.3 Is the strategy logically structured, concise, and aligned with the goal of maximizing product appeal?
2. Effectiveness of Promotional Copy
 - 2.1 Does the promotional copy concisely highlight the core selling points of the product?
 - 2.2 Is the language engaging, persuasive, and appropriate for the target audience?
 - 2.3 Does the copy create a sense of urgency or desire to purchase the product?

Visual Factualty Criteria:

1. Consistency with Product Features and Facts
 - 1.1 Does the response accurately reflect the product's key features, such as its focus on repairing, brightening, and hydrating the eye area?
 - 1.2 Are the described items in the set (e.g., serum, gel-crème, travel-size jars) correctly identified and consistent with the groundtruth?
2. Alignment with Brand and Packaging
 - 2.1 Does the promotional text contain the slogan "Bright eyes start here" or similar expressions that align with the product's intended message?

Figure 23. Example Case of Professional Functional Writing, from Task product marketing strategy.






Role: an experienced nutritionist, skilled in tailoring nutrition plans based on individual needs and creating reasonable dietary solutions.

Background: I am training for a marathon and need meals that provide sustained energy and recovery support.

Instruction: Based on your expertise, tell me the advantages and disadvantages of this dish and what else I should eat to meet my body's needs.




General Subjective Criteria:


1. Analysis Completeness
 - 1.1 Does the response assess the dish's suitability for marathon training, including its balance of carbohydrates, protein, healthy fats, electrolytes, and hydration support?
 - 1.2 Are the additional food recommendations practical and based on well-established sports nutrition principles for endurance athletes?
 - 1.3 Does the response reflect professional expertise while maintaining accessibility, making it easy for the user to understand and apply the advice?
2. Depth of Insight
 - 2.1 Are the recommendations tailored to the specific needs of marathon training, ensuring adequate energy availability, muscle recovery, and hydration?
 - 2.2 Are the suggestions explained in sufficient detail to help the user optimize meal composition for sustained performance and post-run recovery?

Visual Factualty Criteria:

1. Consistency with Dish Descriptions
 - 1.1 Does the response accurately identify and describe all components of the dish, including shrimp, tofu, mushrooms, glass noodles, rice cakes, corn, and sauce, as outlined in the groundtruth?
 - 1.2 Are the descriptions of the macronutrient contributions of each ingredient (e.g., carbohydrates from rice cakes and noodles, protein from shrimp and tofu, fats from sauce and tofu) correctly aligned with their nutritional properties?
2. Alignment with Nutritional Needs
 - 2.1 Are the advantages and disadvantages of the dish correctly matched with its impact on endurance training, particularly regarding carbohydrate availability, protein for muscle repair, sodium content, and hydration needs?
 - 2.2 Do the recommendations effectively address the user's requirement for sustained energy and recovery support, providing clear, actionable steps to enhance the meal for marathon training purposes?

Figure 24. Example Case of Professional Functional Writing, from Task nutritional formulation of recipe.




 **Role:** a professional fashion designer, skilled in creating stylish and practical outfit combinations tailored to different occasions and individual preferences.

Background: I'll spend the day working from home, where the temperature is controlled at 25°C. There's no need to go outside, but I'd like an outfit that's both comfortable and presentable for potential video calls.

Instruction: Help me put together today's outfit plan according to your experience.

Requirements:

1. Create a complete outfit, including suitable bottoms, shoes, and accessories that match the given clothing style and atmosphere, along with their styles and colors.
2. Highlight the thought process behind your choice to explain how this outfit achieves a balance with the weather and location, as well as visual harmony.

 **General Subjective Criteria:**

1. Completeness and Creativity
 - 1.1 Does the response provide a full outfit recommendation, including suitable bottoms, shoes, and accessories?
 - 1.2 Are the chosen styles and colors cohesive and complementary to the home-working environment and potential video calls?
 - 1.3 Does the response balance comfort for staying indoors with presentability for professional virtual interactions?
2. Explanation
 - 2.1 Does the response clearly explain the reasoning behind each item in the outfit?
 - 2.2 Does the explanation address the specific needs for a controlled 25°C indoor environment?
 - 2.3 Does the response justify how the outfit achieves both functionality and visual harmony for home office use?

Visual Factuality Criteria:

1. Consistency with the given scenario and context
 - 1.1 Does the response suggest an outfit that is comfortable for home wear while remaining professional enough for video calls?
 - 1.2 Does the recommendation ensure that the outfit is suitable for an indoor environment with a controlled temperature of 25°C?
2. Visual and Practical Balance
 - 2.1 Does the recommended outfit achieve visual harmony through a cohesive color palette and balanced styles?
 - 2.2 Does the response include practical items, such as soft, breathable fabrics and minimalist accessories, that enhance the overall outfit without compromising comfort?
 - 2.3 Are the selected accessories and styling choices appropriate for a professional yet relaxed home-working atmosphere?

Figure 25. Example Case of Professional Functional Writing, from Task clothing match design.



Role: a wonderful artist who has a unique opinion and interpretation towards each advertisement.

Background: Here is an advertisement picture, but I can't understand its meaning.

Instruction: Explain the meaning of this advertisement in detail.

Requirements:

1. Describe the Advertisement in Detail: Provide a vivid and clear description of the advertisement's visual elements, including colors, shapes, text, objects, and layout.
2. State the Main Message: Explain the core idea or purpose of the advertisement. What is it trying to communicate to its audience (e.g., product, service, value, or emotion)?
3. Interpret the Creativity: Analyze the unique creative elements in the ad. What makes it stand out, and how do these elements effectively support the main message?
4. Explain Symbolism and Metaphors: Unpack any symbolism, hidden meanings, or metaphors used in the ad. How do they contribute to the advertisement's appeal or understanding?


General Subjective Criteria:

1. Detailed Description of the Advertisement
 - 1.1 Vividness: Does the response create a clear and engaging mental image of the advertisement's visual elements?
 - 1.2 Completeness: Are all significant components (e.g., colors, shapes, text, objects, layout) included?
 - 1.3 Clarity: Is the description well-structured, unambiguous, and easy to follow?
2. Main Message
 - 2.1 Precision: Is the core idea or purpose of the advertisement clearly and accurately identified?
 - 2.2 Relevance: Does the explanation clearly connect the message to the ad's visual or textual elements?
 - 2.3 Distinctiveness: Does the response highlight what makes the advertisement unique and memorable?
3. Interpret the Creativity
 - 3.1 Distinctiveness: Does the response identify and analyze the unique creative elements in the ad?
 - 3.2 Supportiveness: Are the creative elements explained effectively, and does the response clarify how these elements support the ad's core message or purpose?
4. Explain Symbolism and Metaphors
 - 4.1 Identification: Are symbolic, metaphorical, or hidden elements in the ad recognized? Is the significance of these elements clearly explained, and how do they contribute to the ad's appeal or understanding?

Visual Factuality Criteria:

1. Object recognition alignment
 - 1.1 Whether it is recognized that this product is a headphone
 - 1.2 Whether it is recognized that there is a Mozart wig on the headphone by combining text and pictures
 - 1.3 Whether it is pointed out that the brand of this product is Sony
2. Implicit meaning alignment
 - 2.1 Whether to interpret the meaning of this advertisement is that Sony's headphones can allow users to experience high-quality music like Mozart or other similar meanings

Figure 26. Example Case of Creative Multimodal Understanding, from Task advertisement explanation.



Role: an expert in analyzing documents, extracting key points and core ideas, and condensing long documents to provide corresponding responses as required.

Background: Can you write a lyric for children to remember these steps to the tune of "Twinkle, Twinkle, Little Star"?

Instruction: Answer my question.

Requirements:

1. Your lyrics should fit the content of the reference material.
2. Your language should be easy to understand for children.
3. Your lyrics fit the rhythm and melody of "Twinkle, Twinkle, Little Star".

General Subjective Criteria:

1. Clarity and Readability:
 - 1.1: Is the response well-structured, ensuring smooth progression and logical organization?
 - 1.2: Does the response clearly present the lyrics in a logical and easy-to-follow format?
 - 1.3: Are the lyrics concise, avoiding unnecessary complexity while remaining clear and informative?
2. Comprehensiveness:
 - 2.1: Are all necessary elements of the task, such as fitting the rhythm and melody of 'Twinkle, Twinkle, Little Star,' sufficiently covered without omissions?
3. Engagement and User-Friendliness:
 - 3.1: Does the response adopt a tone and style suitable for children, making the lyrics approachable and enjoyable?
 - 3.2: Is the language simple and easy for children to understand and remember?
4. Accuracy of Details:
 - 4.1: Are the lyrics accurately consistent with the steps provided in the reference material (i.e. the first step is to wet hands, the second step is to get soup, the third step is to scrub, the fourth step is to rinse, and the fifth step is to dry)?
 - 4.2: Are there no critical steps or details misrepresented, missing, or incorrectly adapted in the lyrics?

Figure 27. Example Case of Creative Multimodal Understanding, from Task document understanding.

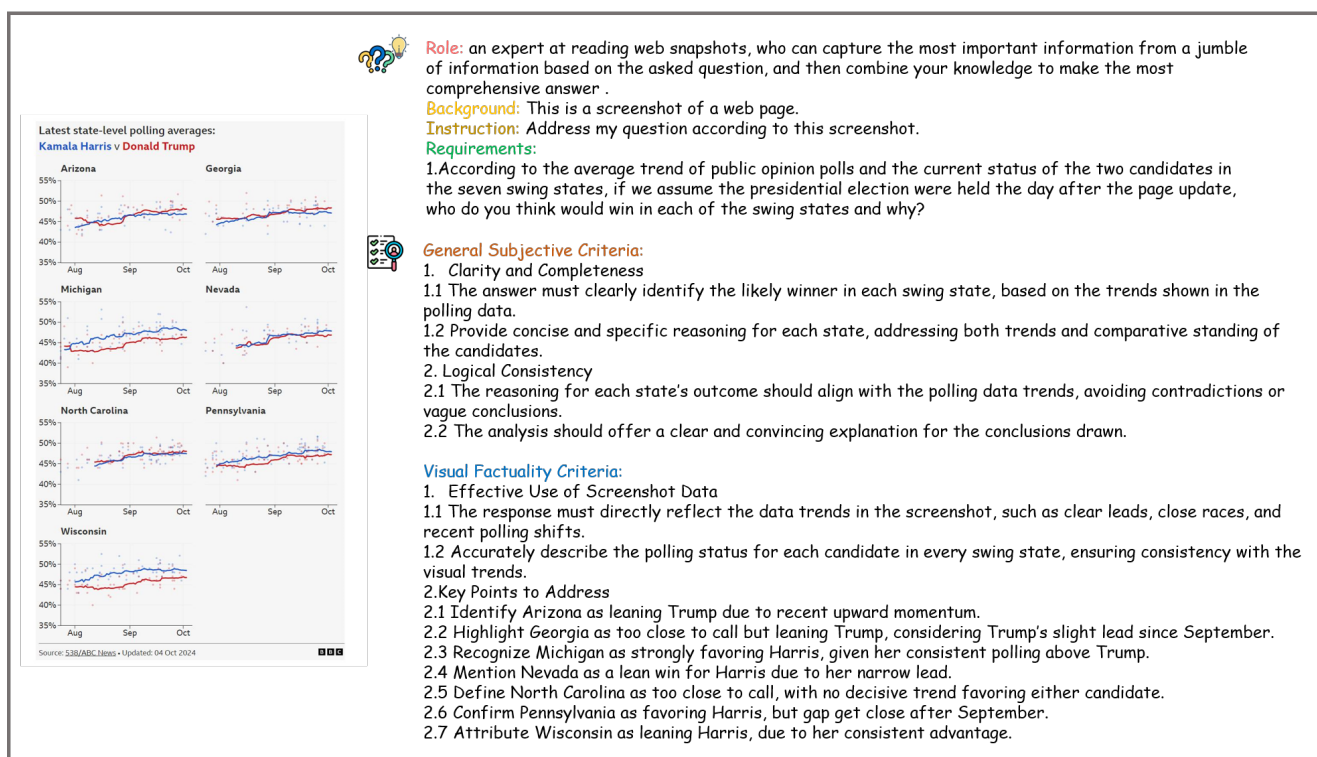




Figure 28. Example Case of Creative Multimodal Understanding, from Task snapshot analysis.




 **Role:** an experienced and well-reputed tour guide can flexibly customize travel plans based on the needs of the travelers.

Background: This is a map marked with popular attractions. The travelers you are about to host are particularly fond of Hyde Park but are not interested in churches..

Instruction: Design a 2-day travel plan based on the provided map and the travelers' preferences.

Requirements:

1. The plan should include the detailed schedule, the names of the attractions to visit, the reasons for selecting them, some background information about the attractions, and any special considerations.
2. It is necessary to select some representative attractions that reflect the local characteristics, while also taking their popularity into consideration.
3. Carefully arrange the order and priority of the attractions to optimize the efficiency of the travel route.
4. The travel plan should be clear and concise, with extra time allocated in the schedule to handle unexpected situations.
5. The plan must align with the given travelers' preferences and requirements.

 **General Subjective Criteria:**

1. **Completeness and Clarity**
 - 1.1 Is the plan clear enough for travelers to quickly understand what activities are scheduled at specific times?
 - 1.2 Is the plan complete, including the schedule, attraction names, reasons for selection, background information, and special considerations?
 - 1.3 Is the background information on the attractions concise and easy for travelers of varying knowledge levels to understand quickly?
2. **Efficiency and Comfort**
 - 2.1 Has the order of visiting attractions been planned to ensure an efficient travel route, avoiding unnecessary travel time?
 - 2.2 Does the time arrangement include sufficient buffers to avoid making the travelers feel rushed during the itinerary?
3. **Appeal and Diversity**
 - 3.1 Are the attractions included in the plan representative of the area, showcasing local characteristics or culture effectively?
 - 3.2 Are the attractions diverse in type, avoiding repetition of similar kinds of attractions?
 - 3.3 Does the plan have an element of appeal, making it engaging and interesting to the travelers?

Visual Factuality Criteria:

1. **Key Points**
 - 1.1 Is it a 2-day London travel plan?
 - 1.2 Is Hyde Park given high priority for visiting?
 - 1.3 Are all church-related attractions avoided in the plan?
 - 1.4 Does the plan include at least one of the following attractions: Buckingham Palace, Westminster Cathedral, British Museum, Houses of Parliament, Tower of London, or Tower Bridge?

Figure 29. Example Case of Creative Multimodal Understanding, from Task travel itinerary planning and recommendations.

Query

Creation-MMBench:
Assume you are **<Role>**
<Background>
Please follow the requirements below to **<Instruction>**.
<Requirement>

Creation-MMBench-TO:
Assume you are **<Role>**
<Background>
Please follow the requirements below to **<Instruction>**.
<Requirement>
This question does not provide images, only descriptions of images by a large language model. Please answer based on the descriptions.
Description of the image: **<Image Description>**

Figure 30. Query Template of Creation-MMBench and Creation-MMBench-TO

Description

Generic Instruction: Please carefully describe the content of each incoming image, starting with the number of images. For each image, first provide a general introduction to the content, then describe the image type, characters and objects, scene and atmosphere, the relationships between people and objects, and any text on the image.

Query-Specific Instruction: Please carefully describe the content of each incoming image, starting with the number of images. For each image, first provide a general introduction to the content, then describe the image type, characters and objects, scene and atmosphere, the relationships between people and objects, and any text on the image. Please pay special attention to the following aspects: **<query-specific part>**.

Figure 31. Generic Instruction vs. Query-Specific Instruction of Image Description

Few-Shot Prompt Template

Your task is to give a concise instruction about what basic elements are needed to be described based on the given question. Ensure that your instructions do not cover the raw question, options, or thought process of answering the question.

##Question##: Assume you are an expert at parsing documents, extracting key points and core ideas from documents, and condensing long documents into one or two paragraphs to summarize them. I come from the environmental protection department. What conclusions can I draw from this report? Please provide key evidence from the document to support your answer, within 100 words. Please follow the requirements below to Answer my question.

1. Your answer should fit the content of the reference material.
2. Provide a concise answer with sufficient thinking, removing unnecessary details.

##Contents to observe##: All text and related charts on the picture show the trend of changes

##Question##: Assume you are a world traveler. You went to this particular country, Chile, and this is what you saw. Please follow the requirements below to write a Reddit post with these pictures, titled "Am I the only one who feels Chile is extremely underrated as a travel destination?"

1. Combine the picture content to show the beautiful scenery of Chile.
2. Attract other users to reply

##Contents to observe##: The uniqueness of the main scenery in the picture and the emotions conveyed by the characters in the picture

##Question##: Assume you are an experienced Reddit post creator seeking help and guidance. There is a problem while uninstalling a software from the iPhone 12. Please follow the requirements below to identify what the problem is based on this image and write a Reddit post asking for help.

1. The post needs a concise title that clearly summarizes the problem
2. The post should include tags closely related to the problem to increase the likelihood of it being seen or answered
3. The post requires a detailed body to provide more information for potential responders

##Contents to observe##: The situation on the interface and the main issues identified

##Question##: Assume you are experienced UI/UX designer, skilled in analyzing and optimizing interface designs to enhance usability and visual appeal. Please follow the requirements below to analyze and propose optimization suggestions for the current UI design based on the provided image.

1. The goal of the optimization is to improve the interface layout, user interaction flow, and overall visual aesthetics while ensuring a seamless user experience.
2. After optimization, the application should have strong visual appeal, easy navigation, and provide users with an enjoyable experience, ultimately increasing user engagement and retention rates.

##Contents to observe##: Interface layout and related information on the interface

##Question##: <Question>.

##Contents to observe##:

Figure 32. The Prompt Template for the GPT-4o to Generate the "Query-Specific Part".

Subjective Judge

<Image Content>

Please act as an impartial judge and evaluate the quality of the responses provided by two AI assistants to the user prompt below, considering both the provided criteria and the image.

Your task is to carefully assess each response based on how well it meets the evaluation criteria, incorporating the visual context from the image. The criteria should be the primary basis for your judgment, with the image serving to complement and inform your analysis.

Steps for Evaluation:

1. Review Both Responses Independently:

Carefully analyze Assistant A's and Assistant B's responses with the criteria and the image. Do not assume any response is better just because it is listed first. Each response should be independently assessed based on the criteria and aided by images to help understand the context.

2. Compare the Strengths and Weaknesses:

After evaluating each response independently, compare the two. Consider both the quality of the content and how closely it aligns with the criteria and image. Identify the strengths and weaknesses of each response, and highlight the key differences.

3. Ensure Fairness:

To avoid positional bias, swap the positions of Assistant A and Assistant B after the first evaluation (i.e., make Assistant A become Assistant B and vice versa) and repeat the analysis and comparison. This ensures that each response is evaluated impartially under the same criteria.

4. Provide a Conclusion Based on Both Evaluations:

After completing both evaluations (original and swapped positions), combine your analysis to provide a final verdict. If the responses are similar, with only minimal differences, your judgment should reflect that and indicate a tie.

Possible Verdict Options:

- If Assistant A is clearly better in both evaluations: $[[A >> B]]$
- If Assistant A is slightly better in both evaluations: $[[A > B]]$
- If both responses are nearly identical, showing minimal differences and no clear advantage: $[[A = B]]$
- If Assistant B is slightly better in both evaluations: $[[B > A]]$
- If Assistant B is clearly better in both evaluations: $[[B >> A]]$

Instructions to the AI Assistants:

[INSTRUCTIONS] <instructions> [END INSTRUCTIONS]

Assistant A Response:

[ASSISTANT A] <Reference Answer> [END ASSISTANT A]

Evaluation Criteria:

[CRITERIA] <Subjective Criteria> [END CRITERIA]

Assistant B Response:

[ASSISTANT B] <Model Prediction> [END ASSISTANT B]

Output Format:

Your output should include:

1. Evaluation of Assistant A's Response: Provide a detailed qualitative evaluation, focusing on how well Assistant A's response aligns with the criteria and the image.
2. Evaluation of Assistant B's Response: Provide a detailed qualitative evaluation, focusing on how well Assistant B's response aligns with the criteria and the image.
3. Final Verdict: After considering both evaluations, select one of the following verdicts and justify it based on your analysis:

Your output format should end like this:

Assistant A Evaluation: [qualitative comment]

Assistant B Evaluation: [qualitative comment]

Final Verdict is: $[[VERDICT]]$

Figure 33. Subjective Judge Prompt Template of Creation-MMBench

Visual Judge

With GroundTruth:

Please act as an impartial judge and evaluate the Visual Factuality of the responses provided by two AI assistants to the user prompt displayed below.

The responses were generated based on the provided instructions and visual input from images.

There is a provided ground truth for the instructions, but the ground truth was not given to the AI assistants when generating their responses.

Take this context into account when making your judgment.

Steps for Evaluation:

1. Evaluate visual factuality for both responses based on the provided ground truth and visual factuality criteria.
 - If the visual factuality criteria consist of ****X aspects****, each aspect is worth ****10/X points****.
 - For each aspect, there may be multiple small criteria. If there are ****Y small criteria in one aspect****, each small criterion is worth ****10/X/Y points****.
2. Assign a total score out of 10 for each response.

Instructions to the AI assistants:

[INSTRUCTIONS] **<instructions>** [END INSTRUCTIONS]

Assistant A response:

[ASSISTANT A] **<Reference Answer>** [END ASSISTANT A]

Visual Factuality Criteria:

[VISUAL FACTUALITY CRITERIA] **<Visual Factuality Criteria>** [END CRITERIA]

Assistant B response:

[ASSISTANT B] **<Model Prediction>** [END ASSISTANT B]

Ground truth:

[GROUND TRUTH] **<GroundTruth>** [END GROUND TRUTH]

Your output should evaluate visual factuality scores for each assistant and end like this:

Response A Visual Factuality Score: X/10

Response B Visual Factuality Score: Y/10

Without GroundTruth:

Please act as an impartial judge and evaluate the Visual Factuality of the responses provided by two AI assistants to the user prompt displayed below.

The responses were generated based on the provided instructions and visual input from images. Take this context into account when making your judgment.

Steps for Evaluation:

1. Evaluate visual factuality for both responses based on the visual factuality criteria.
 - If the visual factuality criteria consist of ****X aspects****, each aspect is worth ****10/X points****.
 - For each aspect, there may be multiple small criteria. If there are ****Y small criteria in one aspect****, each small criterion is worth ****10/X/Y points****.
2. Assign a total score out of 10 for each response.

Instructions to the AI assistants:

[INSTRUCTIONS] **<instructions>** [END INSTRUCTIONS]

Assistant A response:

[ASSISTANT A] **<Reference Answer>** [END ASSISTANT A]

Visual Factuality Criteria:

[VISUAL FACTUALITY CRITERIA] **<Visual Factuality Criteria>** [END CRITERIA]

Assistant B response:

[ASSISTANT B] **<Model Prediction>** [END ASSISTANT B]

Your output should evaluate visual factuality scores for each assistant and end like this:

Response A Visual Factuality Score: X/10

Response B Visual Factuality Score: Y/10

Figure 34. Visual Factuality Judge Prompt Template of Creation-MMBench