AI Log Book

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Part 1: AI Tool Selection

Tool: Google Gemini (Gemini 3 Pro / Gemini 2.5 Flash)

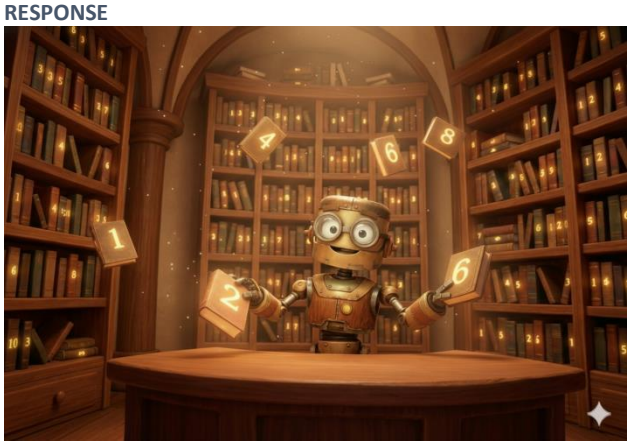
Justification: Selected for its multimodal capabilities, allowing seamless integration of high-quality image generation driven by context-aware text prompts to ensure accurate algorithmic visualization. The 'Flash' model provides rapid iteration, while 'Pro' models offer high-fidelity 4K upscaling for final assets.

Insertion Sort

PROMPT 1

```
Panel 1: A robot sorting 8 books 4, 2, 8, 6, 5, 7, 1, 3.
```

RESPONSE



The AI generated a messy pile of books. The numbers were hard to read, and there was no sense of "left is sorted, right is unsorted".

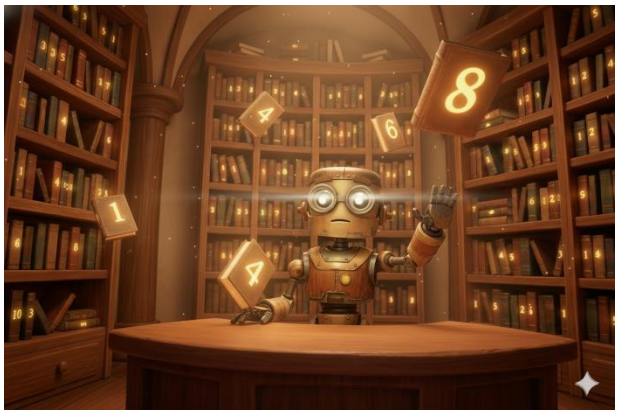
REFLECTION

8 items create visual clutter. I need to establish a strong visual rule in Panel 1: "Sorted books are Gold, Unsorted are Blue" to help the viewer follow the progress.

PROMPT 2

```
Panel 4: The robot looks at book 8. It is bigger than 4, so it stays
put.
```

RESPONSE



The robot just stared at the book. It didn't look like an algorithmic step.

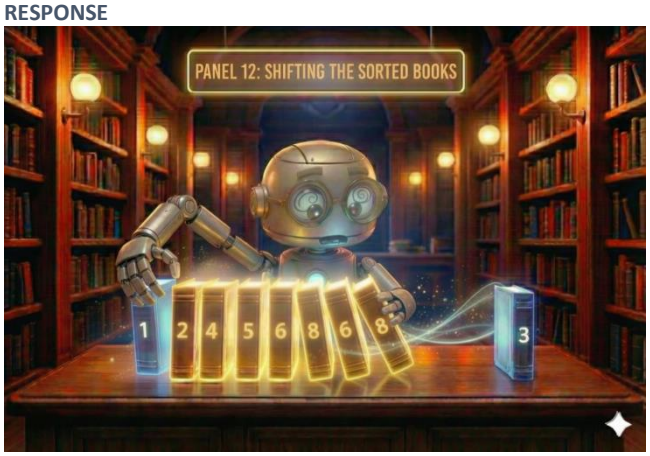
REFLECTION

In Insertion Sort, "doing nothing" is still a comparison. I need to visualize the comparison. I added "Hologram shows 8 > 4" to make the mental process visible.

PROMPT 3

```
Panel 12: The robot moves all books to the right to put 1 at the
start.
```

RESPONSE



The image was blurry with too much motion blur. The numbers were lost.

REFLECTION

Moving 6+ books is hard to render. I changed the prompt to "Dynamic wide shot" and "Mechanical arm" to give a clear visual anchor for the action, ensuring the concept of "shifting the whole array" is clear.

PROMPT 4

```
Panel 13: Robot find 1 is smallest and is Now first.
```

RESPONSE

REFLECTION

It generate 9 books and have a gold 1 book and blue 1 book too. I need describe on left desk have 6 golden book, [2,4,5,6,7,8] .

PROMPT 5

```
Panel 15: Robot puts 3 between 2 and 4.
```

RESPONSE

The number 6 covered number 7.

REFLECTION

I need to explicitly ask for a "gap" or "space" in the previous prompt or describing the insertion action as "sliding into the gap" to ensure legibility

PROMPT(FINAL)

```
[UPSCALE 4K] Top down view. The desk is perfectly organized: [1, 2, 3, 4, 5, 6, 7, 8]. The robot librarian dusts off its hands with a smile. "SORTED".
```

RESPONSE

A clean, organized desk with all numbers visible in order.

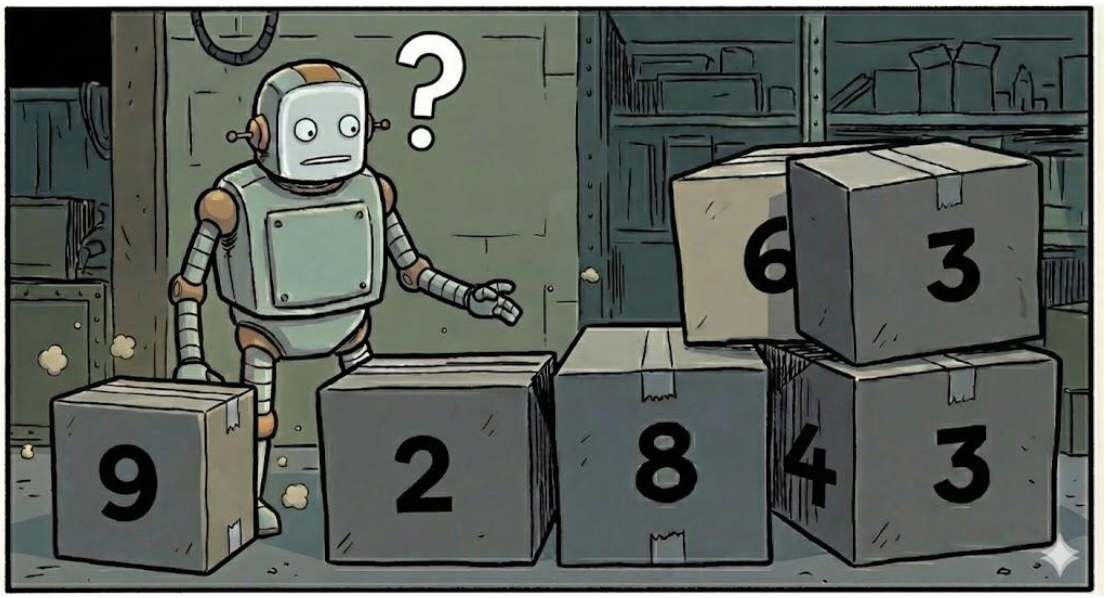
REFLECTION

Successful generation. The image matches the prompt and visualizes the concept well.

Selection Sort

PROMPT1:
THE ROBOT FACED THE DISORDERED GRAY BOXES [9, 2, 6, 4, 8, 3] WITH A BEWILDERED EXPRESSION AND A QUESTION MARK ON ITS HEAD

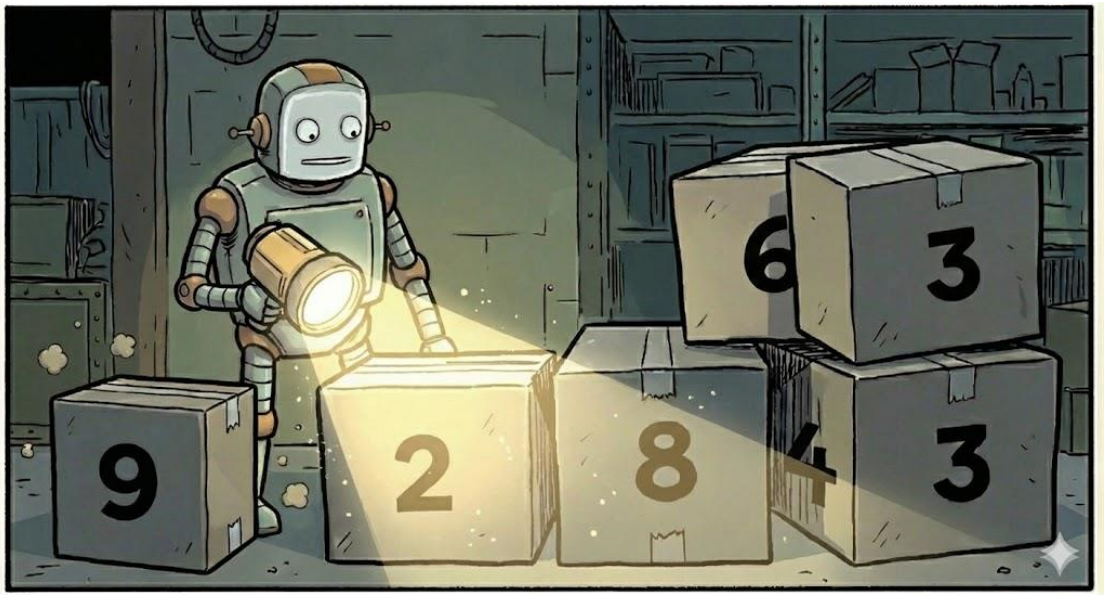
AI Response:



Reflection: Successfully generated 6 boxes, but the numbers are a bit messy

PROMPT2: THE ROBOT USES A SEARCHLIGHT TO SCAN ALL THE BOXES, AND THE SEARCHLIGHT IS LOCKED ON 2 (MINIMUM VALUE).

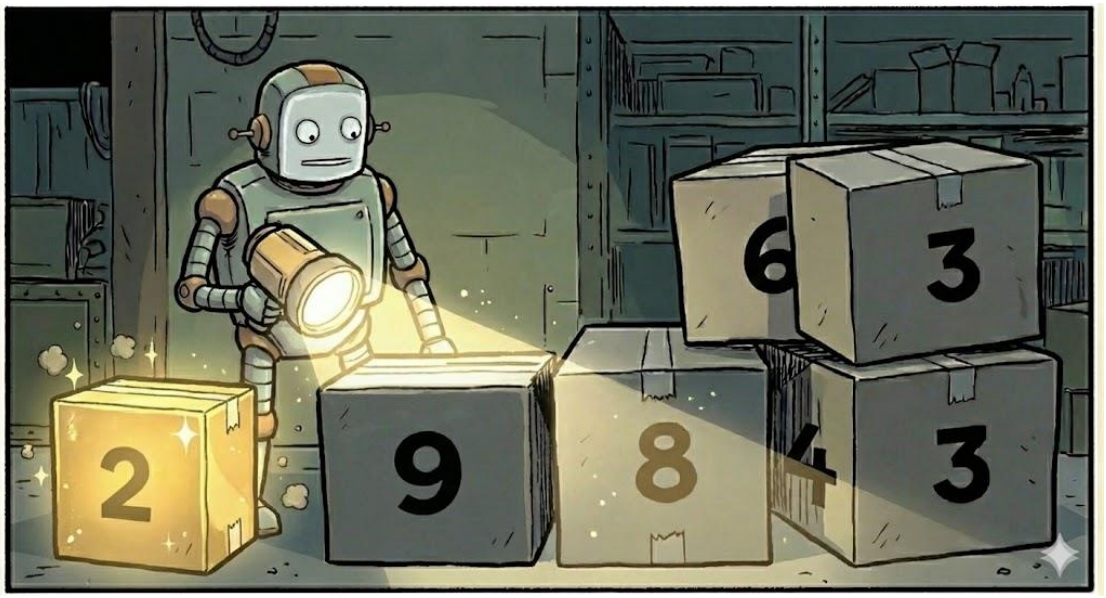
AI Response:



Reflection: Selected 2 box, but the other numbers are still mixed up

PROMPT3: THE ROBOT LIFTED 2 AND SWAPPED POSITIONS WITH THE TOP 9. 2 ARRIVED AT THE FAR LEFT FLOOR AND WAS TURNED GOLDEN BY THE ROBOT

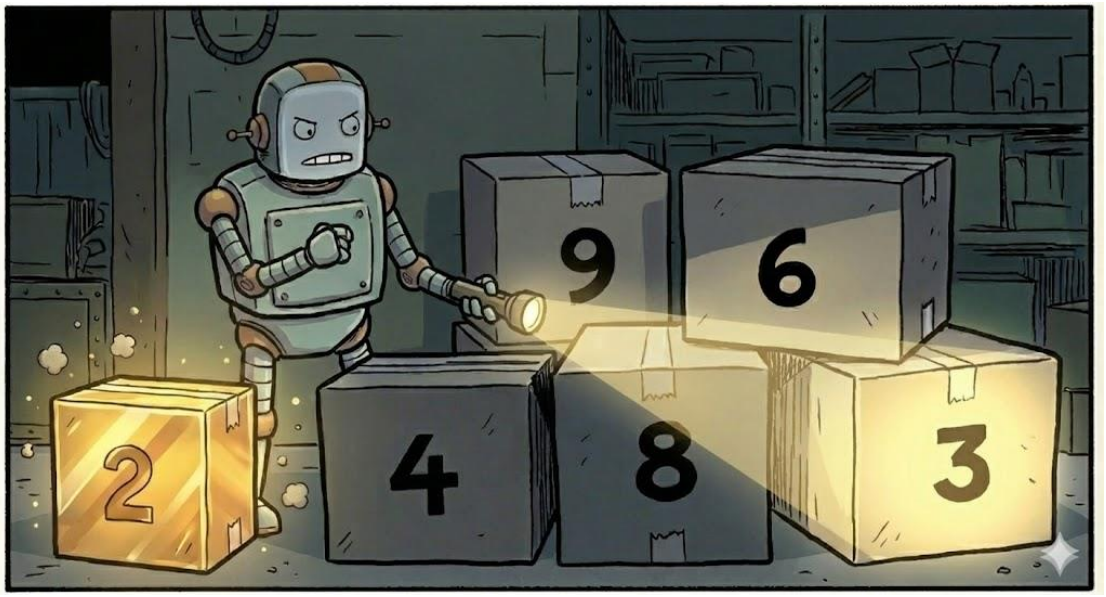
AI Response:



Reflection: 2 box have been placed

PROMPT4: THE ROBOT SCANNED THE REMAINING GRAY BOXES [9, 6, 4, 8, 3] AND FOUND THAT THE LAST 3 WAS THE SMALLEST, AND USED A SEARCHLIGHT TO ILLUMINATE THE 3.

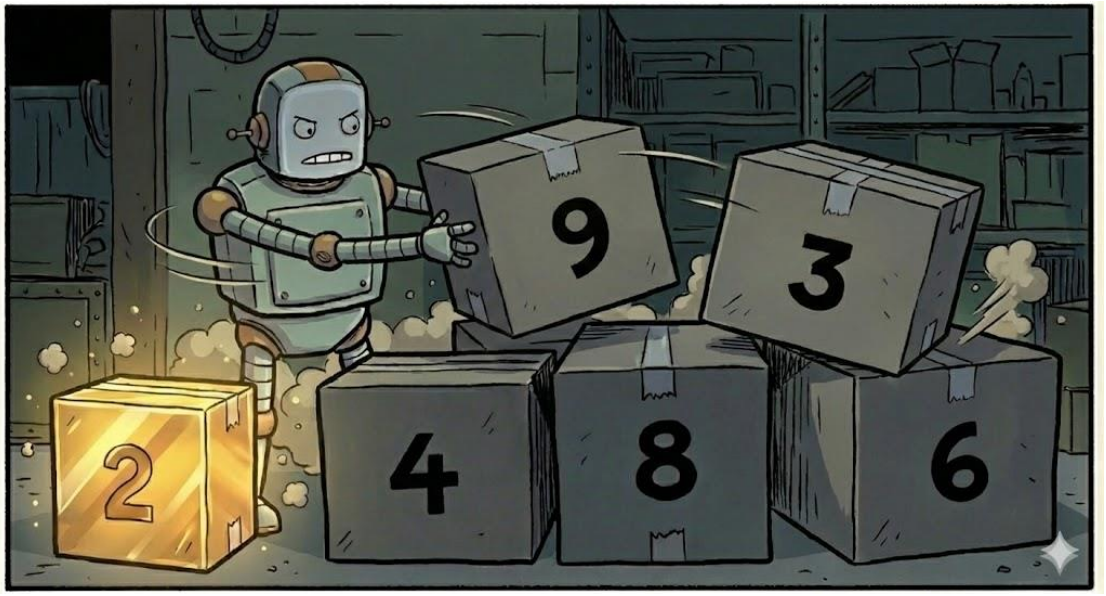
AI Response:



Reflection: Select box 3 and avoid number confusion

PROMPT5: THE ROBOT EXCHANGES 3 WITH THE FIRST BOX 9 IN THE CURRENT GRAY AREA. (NOTE: HERE 9 HAS BEEN REPLACED TO THE END).

AI Response:



Reflection: An error occurred while selecting the box

PROMPT FIANAL: THE ROBOT TURNS 9 INTO GOLD, AND 2, 3, 4, 6, 8, AND 9 ALL SHINE BRIGHTLY. THE ROBOT HAPPILY GESTURES WITH A "PEACE SIGN" OR SCATTERS FLOWERS BESIDE IT.

AI Response:

Reflection: Arrangement complete, comic ending

Merge Sort

PROMPT 1

```
Panel 1: Merge Sort Panel. 8 magical students with glowing numbers 2,
7, 4, 5, 8, 1, 6, 3 stand randomly in arena. Headmaster raises staff
high, shouts 'SPLIT!'. Energy crackles. Bright Pixar-style colors,
white background, consistent characters
```

RESPONSE

REFLECTION

The quality of the generated images is initially satisfactory, but the backgrounds require post-production to integrate magical themes.

PROMPT 2

```
Panel 3: LEFT splits into Team A [2,7] and Team B [4,5]. RIGHT splits
into Team C [8,1] and Team D [6,3]. Magical tree diagram overlays
above. Four mini-arenas glow with team colors.
```

RESPONSE

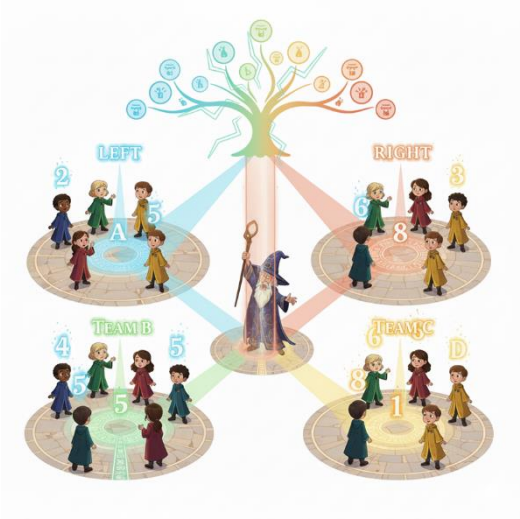
REFLECTION

The tree-like splitting effect is evident, but the four sections lack clear labeling and have incorrect character counts—not 2 each, but groups of 5 and 6. Adjust the descriptions to specify the correct group sizes.

PROMPT 3

```
Panel 3: LEFT splits into Team A 2students [2,7] and Team B 2students
[4,5]. RIGHT splits into Team C 2 students[8,1] and Team D 2 students
[6,3]. Magical tree diagram overlays above. Four mini-arenas glow with
team colors.
```

RESPONSE



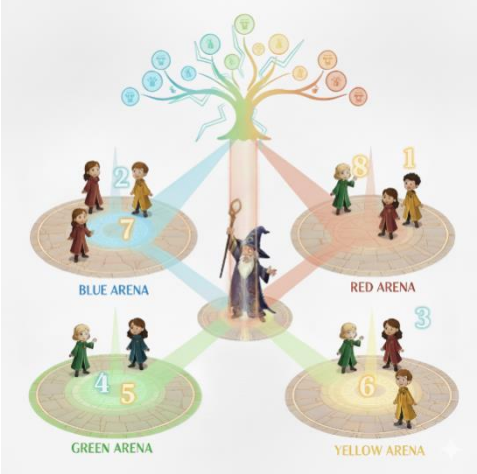
REFLECTION

Team B and Team D are labeled, as are Left and Right, but the character count remains uncertain.

PROMPT 4

```
Panel 3: Four mini-arenas glow with team colors. blue mini arena stand
only two students student[2] and student[7] . and green arena
student[4] with student[5]. right splits into red arena student[8] with
student[1] and yellow arena student[6] with student[3]. Magical tree
diagram overlays above..
```

RESPONSE



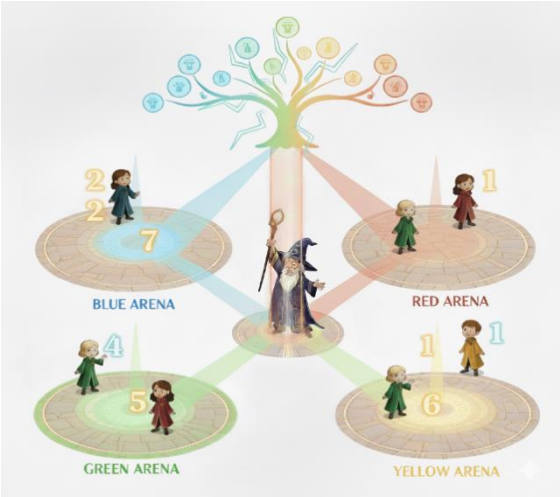
REFLECTION

The tree-like splitting effect is evident, but the four sections lack clear labeling and have incorrect character counts—not 2 each, but groups of 5 and 6. Adjust the descriptions to specify the correct group sizes.

PROMPT 5

```
Panel 3: Four mini-arenas glow with team colors. blue mini arena stand
only two students student[2] with student[7] . Green arena stand only
two students student[4] with student[5]. Red arena stand only two
students student[8] with student[1] . Yellow arena stand only two
students student[6] with student[3]. Magical tree diagram overlays
above.
```

RESPONSE



REFLECTION

Ultimately, four small arenas of different colors were described in detail, with explicit mention of "only two students," and after a series of fine-tuning adjustments, a usable result was achieved.

PROMPT(FINAL)

```
[UPSCALE 4K] All 8 students [1,2,3,4,5,6,7,8] stand in order on a
grand golden staircase. Headmaster declares 'SORTING CHAMPION!'.
Comic book style, 2D vector art, vibrant colors, thick outlines,
educational illustration.
```

RESPONSE

REFLECTION

Successful generation. The image matches the prompt and visualizes the concept well.

Bubble Sort

```
Prompt1:Intro. Eight Nezha clones stand in a line on the clouds.
Their bibs show: [2, 7, 4, 5, 8, 1, 6, 3]. The main Nezha detective
pulls out a giant magnifying glass. Text: "Time to find the biggest
one!"
AI response:
```

reflection: Successfully generated 8 numbers and a detective, the characters are pretty cute.

```
Prompt2:Nezha holds the magnifying glass over [2] and [7]. He shakes
his head. Floating Text: "2 is smaller than 7. Move on."
```

reflection: Successfully created the picture that i was expected,so nicely so far.

```
Prompt3:Nezha moves the glass over [7] and [4]. His eyes widen.
Floating Text: "Aha! 7 is bigger than 4!"
```

AI response :

reflection: SMOOTHLY detected a bigger number at the back of a pair .

```
Prompt4:Panel 4 (Swap 7 & 4): ACTION! The Nezhas swap positions with
a poof of smoke. New order: [2, 4, 7, 5, 8, 1, 6, 3]. Text: "SWAP!"
```

AI response:

reflection: Gemini finally made a mistake here,the numbers were totally wrong!

Prompt5:Panel 4 (Swap 7 & 4): u made a mistake here ,can u check ur picture ACTION! The Nezhas swap positions with a poof of smoke. New order: [2, 4, 7, 5, 8, 1, 6, 3]. Text: "SWAP!

AI response:

reflection: Gemini corrected the picture nicely ,GOOD job!GEMINI!

Final prompt :happy detective over the sorting and display the sortd numberPrompt3Text: "I finally complete my sorting!"

AI response:

Reflection:Gemini gave the correct sorted number:Bubble sorting over.