**Output of the first generation without compiling problem**

|  | caption | benchmark | automatikz | gpt4-tikz | gpt4-graph | open\_art | Dream studio |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | A square to the right of a circle. |  |  |  |  |  |  |
| 2 | A square to the left of a circle. |  |  |  |  |  |  |
| 3 | A circle inside a square. |  |  |  |  |  |  |
| 4 | A square inside a circle. |  |  |  |  |  |  |
| 5 | Three small circles and two large ones. |  |  |  |  |  |  |
| 6 | Four circles of different sizes. |  |  |  |  |  |  |
| 7 | A large circle with three small circles inside. |  |  |  |  |  |  |
| 8 | Two circles intersecting with each other. |  |  |  |  |  |  |
| 9 | Five circles without intersecting. |  |  |  |  |  |  |
| 10 | A square rotated 30 degrees clockwise. |  |  |  |  |  |  |
| 11 | An ellipse rotated counterclockwise by 45 degrees. |  |  |  |  |  |  |
| 12 | A black circle with a red border. |  |  |  |  |  |  |
| 13 | A red circle with a black border. |  |  |  |  |  |  |
| 14 | The line of the function y = 2x in coordinates. |  |  |  |  |  |  |
| 15 | There is no box on a slope. |  |  |  |  |  |  |
| 16 | A box on a slope. |  |  |  |  |  |  |
| 17 | A bar graph including three bars with values of 30, 40, and 45. |  |  |  |  |  |  |
| 18 | A blank table with two rows and three columns. |  |  |  |  |  |  |
| 19 | A 3D coordinate. |  |  |  |  |  |  |
| 20 | A circle divided into three equal parts. |  |  |  |  |  |  |
| 21 | A square divided into N equal parts, where N=4. |  |  |  |  |  |  |
| 22 | M rectangles where $M=2$. |  |  |  |  |  |  |
| 23 | An artificial neural network with one hidden layer. |  |  |  |  |  |  |
| 24 | A bar chart with a blue bar to the left of an orange bar. |  |  |  |  |  |  |
| 25 | A bar chart with a blue bar above a red bar and the blue bar is longer than the red bar. |  |  |  |  |  |  |
| 26 | A line chart with a green line and a red line. There is one intersection between the two lines. |  |  |  |  |  |  |
| 27 | A line chart with a green line below a red line. |  |  |  |  |  |  |

**More reasonable output in first-3 generations**

|  | caption | Times | automatikz | Times | gpt4-tikz |
| --- | --- | --- | --- | --- | --- |
| 4 | A square inside a circle. | 1st |  | 1st  2nd |  |
| 7 | A large circle with three small circles inside. | 1st  2nd  3rd |  | 1st |  |
| 11 | An ellipse rotated counterclockwise by 45 degrees. | 1st |  | 1st  2nd |  |
| 16 | A box on a slope. | 1st |  | Same for three times |  |
| 21 | A square divided into N equal parts, where N=4. | 1st  2nd  3rd  Change caption in an easier version: A square divided into 4 equal parts. |  | 1st |  |
| 23 | An artificial neural network with one hidden layer. | 1st  2nd  3rd |  | Same generation for three times |  |
| 25 | A bar chart with a blue bar above a red bar and the blue bar is longer than the red bar. | 1st |  | Same generation for three times (Reason: understand ‘above’ as adding tikz code for blue bar first, while with tikz it draw from the bottom) |  |