
Teaching Programming using Games

Exercise 1

Open TPuG (desktop or mobile version) and follow the instructions below.

Click on Code, then click on the START section. Type the code below:

```
x = 0
y = 0
head = loadImage("snakehead.png")
draw(head, x, y)
```

The screenshot shows the TPuG interface. On the left is a code editor with a dark background and green text containing the code: x = 0, y = 0, head = loadImage("snakehead.png"), and draw(head, x, y). On the right is a command palette with a dark background. It shows the coordinates 3,17 at the top, followed by a checked box next to the word 'Insert'. Below 'Insert' are two options: 'loadImage' and 'play Audio', both in green text.

Return to the screen to select code sections and now click on MOVE. Type the code below:

```
x = x + 1
y = y + 1
draw(head, x, y)
```

The screenshot shows the TPuG interface. On the left is a code editor with a dark background and green text containing the code: x = x + 1, y = y + 1, and draw(head, x, y). On the right is a command palette with a dark background. It shows the coordinates 1,1 at the top, followed by a checked box next to the word 'Insert'. Below 'Insert' is one option: 'draw', in green text.

Observe the use of variables in the program:

- Variables x and y start with value 0.
- Variable head will store an image loaded from the file "snakehead.png".
- The MOVE code is executed repeatedly, increasing the value of x and y, and drawing the image in position (x,y).

Return to the main screen and click on PLAY.

Observe the expected behavior: the image will move, because the commands will update the values of x and y in each iteration.

Edit the code and test it after each modification suggested below:

1. Open the START section and click on “speed”, on the right table. Observe that this predefined variable defines the speed for the execution of the code. Define different values for speed in the START section and test the execution again, returning to the main screen and clicking on PLAY.
2. Edit the code on the START section, modifying the way x and y are updated. For instance, try to use commands like “x += 1” instead of “x = x + 1”, or try to use different values to increase x and y. Test the code and check the behavior.
3. Create new variables x1 and y1 in the START section, starting with zero. Load a different image and store it in a new variable. Insert code in START and MOVE to move and draw the 2 images at the same time.