COSC 1436 ASSIGNMENT - IT'S MARIO!

Let us code a simple part of Super Mario Bros in Python. In the game, Mario is able to eat certain types of food.

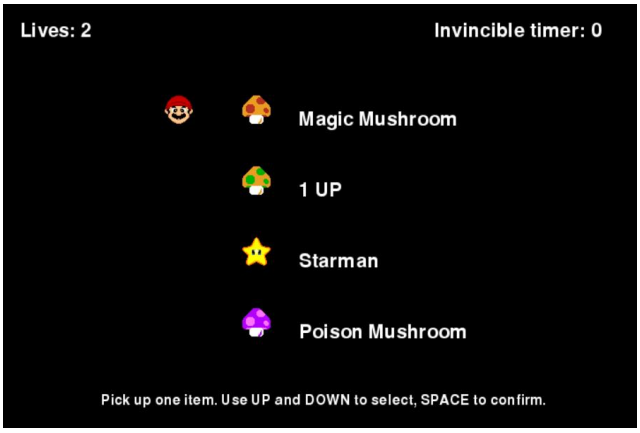
Our Mario has the following properties (variables) in addition to *x* and *y*:

- `mario.lives`: represents the number of lives that Mario has. Initially Mario has 2 lives.
- `mario.super`: determines whether Mario is Super Mario or not.
- `mario.invincible`: determines whether Mario is invincible or not.
- `mario.invincibleTimer`: represent the time (in frames) that Mario is invincible. The timer will be greater than 0 only when Mario eats Starman.
- `mario.dead`: determines whether Mario is alive or dead. Initially Mario is alive.
- `mario.image`: stores the text of the image that represents Mario on the screen.
- `mario.selection`: indicates the food item Mario is going to eat.

There are four types of food Mario can eat:

1. Magic Mushroom (aka Super Mushroom) makes Mario super.
2. 1 UP Mushroom gives Mario an additional life.
3. Starman makes Mario invincible for 5 seconds (300 frames).
4. Poison Mushroom harms Mario as if Mario is hit by an enemy.

In our program, we will write the code to determine the consequences after Mario eats each of the food items. However, unlike the full Mario game, we have simplified the scenario. The player will use ↑ and ↓ arrows to select an item, and press the space bar to confirm the selection.



After the selection is confirmed, Mario eats the food item, and the program should determine the consequences. The code to initialize Mario (`initMario`), initialize the food items (`initFood`), handle the keyboard input (`on_key_down`), display (`draw`), and update the game status (`update`) have been implemented already. In `on_key_down` function, when the player presses the space bar, `eatFood` function is called, and the food is passed to `eatFood` as a parameter.

Assignment Questions:

1. Please complete the `eatFood(foodType)` function. In the `eatFood` function, you should use an if-statement to implement the following logic:
   - If Mario eats the Magic Mushroom, he will become Super Mario. His super status (`mario.super`) will be True, and his appearance (`mario.image`) will be "sumario.png".
   - If Mario eats the 1 UP Mushroom, his lives (`mario.lives`) will be increased by 1.
   - If Mario eats the Starman, he will gain 300 frames, i.e. 5 seconds of invincibility. His invincible status (`mario.invincible`) will be True, and his invincible timer (`mario.invincibleTimer`) will be 300.
   - If Mario eats the Poison Mushroom, the consequence is the same as if he is hit by an enemy, then the `receiveHit` function is called.

2. Please complete the `receiveHit()` function. In the `receiveHit` function, you should use an if-statement to implement the following logic:
   - If Mario is currently invincible, there is no effect of eating the poisonous mushroom.
   - If Mario is super, then he will return to the original status. His super status will be False, and his image will be reset to "mario.png".
   - If Mario is neither invincible nor super, then he will lose 1 life. If the number of lives is 0, Mario will be dead (`mario.dead`).

What to submit:

- Please upload your code as "mario.py" to D2L by the deadline.

I strongly recommend you to read through the whole program. You will find something interesting. For example,

- We have used 0, 1, 2, and 3 to represent the 4 types of food items respectively. However, instead of writing these numbers in the code, we declared global variables named `MAGIC_MUSHROOM`, `ONEUP_MUSHROOM`, `STARMAN`, and `POISON` at the top of the program. In the rest of the program, we use these variables instead of the numbers. This makes the code easier to read. You can use this pattern in your programs in the future.
- In the `update` function, the invincible timer is decreased by 1 every time. Therefore, it will take 5 seconds to decrease 300 to 0, given the frame rate of 60 fps. Although many game engines have built-in timers/clocks, you can still choose to customize a timer/clock in this way.
- To display the invincible timer, we use `str()` to convert the int to a string, and then use + to combine the strings: `"Invincible timer: "+str(mario.invincibleTimer)`

Best of luck and have fun!