

## Introduction to Python Turtles

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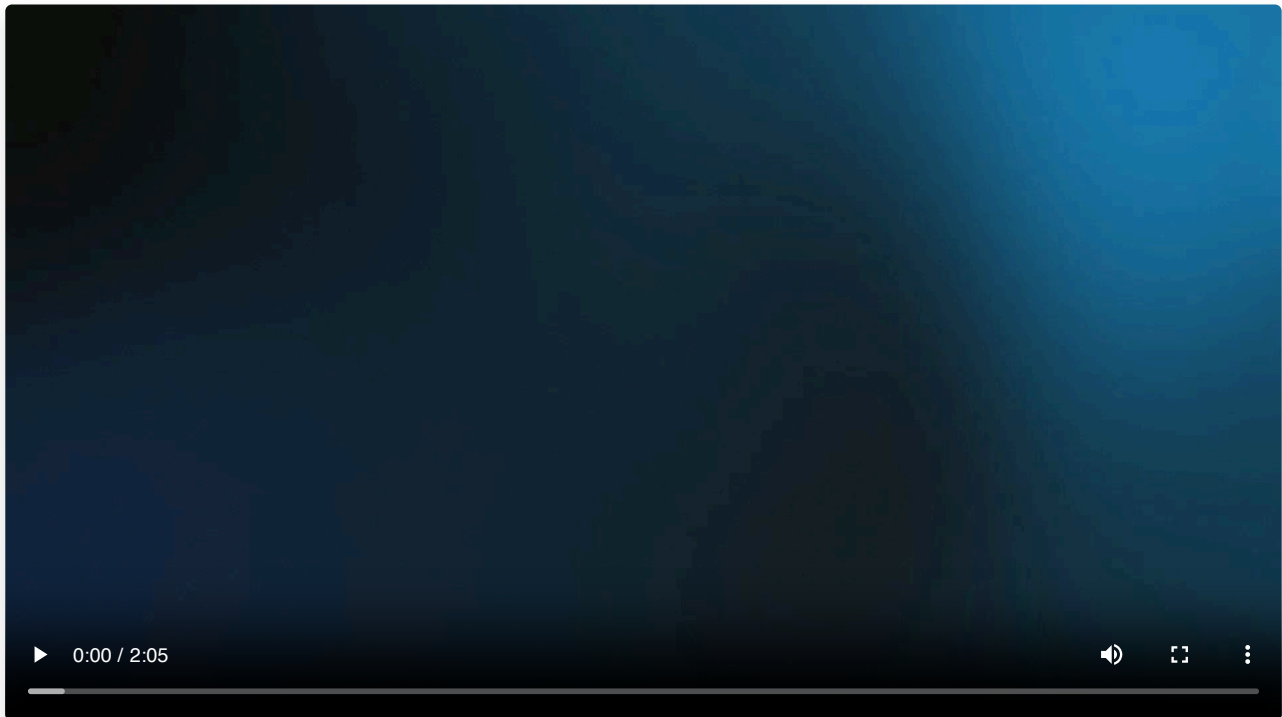
### Textbook

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## Introduction to Python Turtles



# The Autograder



In this unit you will be introduced to Python. **In order for Python to run, you must write your code in a Python file.**

## Create a Python File

Go to the file bar at the top of your screen and create a new file. Name it something you can remember. **Make sure the file extension is .py.** This means that it is a Python file and you can run Python code.

*Note: Do not name your file **python.py** or **turtle.py** – this will throw an error. Choose a different name for your file. Choose a file name that is one word long.*

## What is Python?



[Python](#) is a user-friendly programming language known for its simplicity and readability. Python can be applied in web development, data analysis, artificial intelligence, machine learning, automation, and more. Part of what makes it so useful is a vast collection of built-in functions, additional packages, and libraries. For this course, we will be using a library called turtles.

## What are Python Turtles?

[The Python turtle library](#) comes pre-installed and allows users to generate images and shapes on a virtual canvas. This tool is used for drawing on the screen. The little drawing tool is referred to as the "[turtle](#)," giving the library its name. Essentially, the Python turtle library offers a fun and interactive introduction to programming with Python, making it an ideal starting point for new programmers.

## Import the Python Turtles Library

The first thing we need to do, is tell the computer that we want to use the Python Turtles library. This is done by adding the code `import turtle` at the top of your code page.

```
1 import turtle
```

At this point nothing will happen on your screen because we've only told the computer we want to use the library. We haven't told it what to do yet.

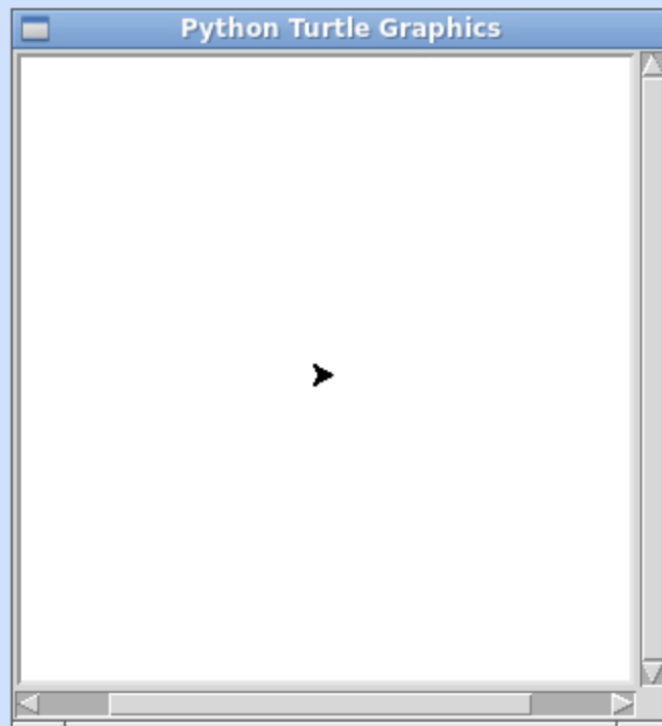
*Reminder: make sure you are in a python file. Check your file name and make sure it has the extension .py after it.*

## Create the Turtle Screen

Now we need to create a screen for the turtle to walk on. This is done by adding the code `turtle.getscreen()` to the next line of code.

```
1 import turtle
2 turtle.getscreen()
```

This should create a screen on your page that says Python Turtle Graphics at the top. The center of the screen should have a little arrow at the center pointing to the right.



This little arrow is your turtle!

## What is back-end and front-end development?

[Front-end development](#) involves the creation and arrangement of webpage designs, focusing on the visual aspects that users directly interact with.

On the other hand, [back-end development](#) is responsible for ensuring websites operate smoothly by establishing connections to necessary components.

To illustrate, consider a house analogy. Front-end is like the decorations – the paint, pictures on the wall – everything that contributes to the aesthetic appeal and user interaction. Meanwhile, back-end is comparable to the house's structure – the framework behind the walls that provides stability, the electrical system, and the mechanisms that make the house function effectively.

In essence, front-end determines how websites appear, while back-end governs how websites operate.

## Checkpoint

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### Introduction to Python Turtles

Practice what you learned in this lesson!

1. Make sure you are in a python file with the extension .py.
2. Import the turtle library.
3. Generate the turtle screen.

### Requirements:

- Import the turtle library.
- Generate the turtle screen.

## Questions (8)

### 1. Why is the Python programming language known for its user-friendliness?

MULTIPLE CHOICE

Choose the correct answer:

- A. It has a simple and readable syntax.
- B. It supports only basic functionalities.
- C. It excludes built-in functions.
- D. It requires extensive coding knowledge.

### 2. What code is required to import the Python Turtles library in your Python file?

MULTIPLE CHOICE

Choose the correct answer:

- A. `import turtle.graphics`
- B. `import pythonturtle`
- C. `include turtle.library`
- D. `import turtle`

### 3. What function creates a screen for the turtle to walk on in the Python turtle library?

MULTIPLE CHOICE

Choose the correct answer:

- A. `turtle.create_screen()`
- B. `turtle.getcanvas()`
- C. `turtle.generate_screen()`
- D. `turtle.getscreen()`

### 4. What is the purpose of the little arrow at the center of the turtle screen?

MULTIPLE CHOICE

Choose the correct answer:

- A. It indicates the direction of the turtle.
- B. It represents the Python programming language.
- C. It is a visual decoration.
- D. It signifies the end of the code execution.

## 5. How does front-end development differ from back-end development, using the house analogy?

MULTIPLE CHOICE

Choose the correct answer:

- A. Back-end is like the structure of the house, while front-end focuses on the outside of the house.
- B. Front-end handles user interaction, while back-end ensures website functionality.
- C. Front-end is responsible for the electrical system, while back-end deals with decorations.
- D. Front-end determines how websites operate, while back-end governs appearance.

## 6. Why is it important to include the line "import turtle" at the beginning of your Python code?

MULTIPLE CHOICE

Choose the correct answer:

- A. It activates the Python Turtles library.
- B. It enhances code aesthetics.
- C. It prevents errors in Python execution.
- D. It defines the turtle's behavior.

## 7. Debug the following code.

DEBUG CODE

Code to Debug:

```
1 import turtle
2 turtle.getscreen
```

## 8. Debug the following code:

DEBUG CODE

Code to Debug:

```
1 import turtle
2 turtle_getscreen()
```



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## Answer Keys & Solutions

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### Checkpoint Solutions

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#### Introduction to Python Turtles

```
1 import turtle
2 turtle.getscreen()
```

### Questions

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#### 1. Why is the Python programming language known for its user-friendliness?

MULTIPLE CHOICE

##### Correct Answer:

- A. It has a simple and readable syntax. ✓ Correct
- B. It supports only basic functionalities. ✗ Incorrect
- C. It excludes built-in functions. ✗ Incorrect
- D. It requires extensive coding knowledge. ✗ Incorrect

##### Explanation:

Python is known for being readable.

#### 2. What code is required to import the Python Turtles library in your Python file?

MULTIPLE CHOICE

##### Correct Answer:

- A. import turtle.graphics ✗ Incorrect
- B. import pythonturtle ✗ Incorrect
- C. include turtle.library ✗ Incorrect
- D. import turtle ✓ Correct

##### Explanation:

It's a simple command

### 3. What function creates a screen for the turtle to walk on in the Python turtle library?

MULTIPLE CHOICE

Correct Answer:

- A. `turtle.create_screen()` × Incorrect
- B. `turtle.getcanvas()` × Incorrect
- C. `turtle.generate_screen()` × Incorrect
- D. `turtle.getscreen()` ✓ Correct

#### Explanation:

You get the screen

### 4. What is the purpose of the little arrow at the center of the turtle screen?

MULTIPLE CHOICE

Correct Answer:

- A. It indicates the direction of the turtle. ✓ Correct
- B. It represents the Python programming language. × Incorrect
- C. It is a visual decoration. × Incorrect
- D. It signifies the end of the code execution. × Incorrect

#### Explanation:

The little arrow represents the turtle.

### 5. How does front-end development differ from back-end development, using the house analogy?

MULTIPLE CHOICE

Correct Answer:



- A. Back-end is like the structure of the house, while front-end focuses on the outside of the house. ✓ Correct
- B. Front-end handles user interaction, while back-end ensures website functionality. ✗ Incorrect
- C. Front-end is responsible for the electrical system, while back-end deals with decorations. ✗ Incorrect
- D. Front-end determines how websites operate, while back-end governs appearance. ✗ Incorrect

**Explanation:**

The back end makes the website function and front end is what it looks like.

## 6. Why is it important to include the line "import turtle" at the beginning of your Python code?

MULTIPLE CHOICE

**Correct Answer:**

- A. It activates the Python Turtles library. ✓ Correct
- B. It enhances code aesthetics. ✗ Incorrect
- C. It prevents errors in Python execution. ✗ Incorrect
- D. It defines the turtle's behavior. ✗ Incorrect

**Explanation:**

It accesses the library

## 7. Debug the following code.

DEBUG CODE

**Incorrect Code:**

```
1 import turtle
2 turtle.getscreen
```

**Correct Solution:**

```
1 import turtle
2 turtle.getscreen()
```

**Explanation:**

Don't forget the parentheses after getscreen!

## 8. Debug the following code:

### Incorrect Code:

```
1 import turtle
2 turtle_getscreen()
```

### Correct Solution:

```
1 import turtle
2 turtle.getscreen()
```

### Explanation:

The underscore needs to be something else.