MODULE 3

JUNE 2023

QN:1 Illustrate the function of following methods in turtle

1. turtle.setheading(0) ii)turtle.forward(50) iii) turtle.left(90)

ANS:

**1. turtle.setheading(0)**

* This sets the turtle’s orientation to **0 degrees** (which points **east**).
* Example: If the turtle was facing **north (90°)** or **west (180°)**, it will now face **east (0°)**.

**2. turtle.forward(50)**

* Moves the turtle **forward** by **50 units** in the direction it is currently facing.
* Example: If the turtle is facing **east (0°)**, it moves **right** by 50 units.

**3. turtle.left(90)**

* Rotates the turtle **90 degrees** to the **left (counterclockwise)**.
* Example: If the turtle was facing **east (0°)**, after turning left by **90°**, it will face **north (90°)**.

JANUARY 2024

QN: Explain the attributes and methods of Turtle object.

ANS:

**1. Attributes of Turtle Object**

Attributes define the state of the turtle.

| **Attribute** | **Description** |
| --- | --- |
| position | The current (x, y) coordinates of the turtle. |
| heading | The current direction in degrees (0° = east, 90° = north). |
| pensize | The width of the pen (default is 1). |
| pencolor | The color of the pen (e.g., "red", "blue"). |
| fillcolor | The color used to fill shapes. |
| speed | The turtle’s movement speed (0 = fastest, 1-10 = slow to fast). |
| isdown | True if the pen is down (drawing), False if it is up. |
| visible | True if the turtle is visible, False if hidden. |
| shape | The appearance of the turtle ("arrow", "turtle", "circle", etc.). |

**2. Methods of Turtle Object**

Methods define what actions the turtle can perform.

**A. Movement Methods**

| **Method** | **Description** |
| --- | --- |
| forward(distance) or fd(distance) | Moves the turtle forward by distance units. |
| backward(distance) or bk(distance) | Moves the turtle backward by distance units. |
| right(angle) or rt(angle) | Rotates the turtle **clockwise** by angle degrees. |
| left(angle) or lt(angle) | Rotates the turtle **counterclockwise** by angle degrees. |
| goto(x, y) | Moves the turtle to the given (x, y) coordinates. |
| setx(x) | Moves the turtle to the given x position. |
| sety(y) | Moves the turtle to the given y position. |
| setheading(angle) | Sets the turtle’s orientation (0° = east, 90° = north). |
| home() | Moves the turtle to (0,0) and resets heading to 0°. |

**B. Pen Control Methods**

| **Method** | **Description** |
| --- | --- |
| penup() or pu() | Lifts the pen (turtle moves without drawing). |
| pendown() or pd() | Lowers the pen (turtle moves and draws). |
| pensize(width) | Sets the width of the pen. |
| pencolor(color) | Changes the pen color. |
| fillcolor(color) | Changes the fill color of shapes. |
| begin\_fill() | Starts filling a shape. |
| end\_fill() | Stops filling and fills the shape. |

**C. Appearance Methods**

| **Method** | **Description** |
| --- | --- |
| shape("shape\_name") | Changes the turtle’s shape ("turtle", "circle", "square", etc.). |
| shapesize(stretch\_wid, stretch\_len) | Stretches the turtle shape. |
| speed(value) | Sets the movement speed (0 = fastest, 1-10 = slow to fast). |
| hideturtle() or ht() | Hides the turtle. |
| showturtle() or st() | Shows the turtle. |

**D. State and Position Methods**

| **Method** | **Description** |
| --- | --- |
| position() | Returns the current (x, y) coordinates. |
| heading() | Returns the current heading (angle in degrees). |
| isdown() | Returns True if the pen is down, else False. |

**E. Reset and Clear Methods**

| **Method** | **Description** |
| --- | --- |
| clear() | Clears the drawing but keeps the turtle’s position. |
| reset() | Clears the screen and resets the turtle to (0,0). |

2024 MAY

QN: How can you set the drawing speed of the turtle in the Turtle module? Give an

Example

ANS:

The **speed(value)** method in the turtle module is used to control the turtle’s drawing speed.

**Speed Values and Their Meaning**

| **Value** | **Speed Description** |
| --- | --- |
| 0 | Fastest (no animation) |
| 1 | Slowest |
| 3-5 | Medium speed |
| 6-10 | Fastest speeds (gradually increasing) |

PROGRAM:

import turtle

t = turtle.Turtle()

t.speed(5)

t.forward(100)

t.left(90)

t.forward(100)

t.hideturtle()

turtle.done()

MAY 2023

QN: What are the attributes of a turtle object?

ANS:

**Position & Orientation Attributes**

| **Attribute** | **Description** |
| --- | --- |
| position | Current (x, y) coordinates of the turtle. |
| xcor() | Returns the current x-coordinate. |
| ycor() | Returns the current y-coordinate. |
| heading() | Returns the current direction in degrees (0° = east, 90° = north). |

**Pen Attributes**

| **Attribute** | **Description** |
| --- | --- |
| pensize | Width of the drawing pen (default is 1). |
| pencolor | Color of the drawing pen (e.g., "red", "blue"). |
| fillcolor | Color used to fill shapes. |
| isdown() | Returns True if the pen is down (drawing), otherwise False. |

| **Appearance Attributes**  **Attribute** | **Description** |
| --- | --- |
| shape | The shape of the turtle ("arrow", "turtle", "circle", etc.). |
| shapesize() | Returns or sets the size of the turtle shape. |
| visible | True if the turtle is visible, False if hidden. |

**Speed & Movement Attributes**

| **Attribute** | **Description** |
| --- | --- |
| speed | Speed of the turtle’s movement (0 = fastest, 1-10 = slow to fast). |