|  |  |
| --- | --- |
| GIVEN DATA | REQUIRED RESULTS |
| **X\_Axis**  **Y\_Axis** | **Quadrant** |
| REQUIRED PROCESSING | SOLUTION ALTERNATIVES |
| If x > 0 and y > 0 then Output Quadrant I  If x < 0 and y > 0 then Output Quadrant II  If x < 0 and y < 0 then Output Quadrant III  If x > 0 and y < 0 then Output Quadrant IV | Define the X\_Axis and Y\_Axis as input values  Declare X\_Axis and Y\_Axis as type Float Values |

CONTROL

PRINT

Initialise

Quadrant 1

Quadrant2 Quadrant 1 Quadrant 2 Quadrant 3 Quadrant 4

INPUT:

- X\_Axis: Float value representing x-coordinate

- Y\_Axis: Float value representing y-coordinate

PROCESS:

1. Read X\_Axis and Y\_Axis values

2. Check if X\_Axis > 0 AND Y\_Axis > 0 → Quadrant I

3. Check if X\_Axis < 0 AND Y\_Axis > 0 → Quadrant II

4. Check if X\_Axis < 0 AND Y\_Axis < 0 → Quadrant III

5. Check if X\_Axis > 0 AND Y\_Axis < 0 → Quadrant IV

OUTPUT:

- Message indicating which quadrant the point lies in

- Or message indicating point lies on an axis

**Algorithm (Stepwise):**

1. Initialise X\_Axis and Y\_Axis as 0
2. Read Algorithm inputs (X\_Axis,Y\_Axis)
3. Check
4. Check if the X\_Axis and Y\_Axis are positive:
   1. If yes → Print (“Your X\_Axis and Y\_Axis lie in 1st Quadrant”).
5. Check if the X\_Axis is negative and Y\_Axis is positive:
   1. If yes → Print (“Your X\_Axis and Y\_Axis lie in 2nd Quadrant”).
6. Check if the X\_Axis and Y\_Axis are negative:
   1. If yes → Print (“Your X\_Axis and Y\_Axis lie in 3rd Quadrant”).
7. Check if the X\_Axis is positive and Y\_Axis is negative:
   1. If yes → Print(“Your X\_Axis and Y\_Axis lie in 4th Quadrant”)

**FLOWCHART:**

**START**

**X\_Axis = 0**

**Y\_Axis = 0**

**INPUT X\_Axis, Y\_Axis**

**IS X\_Axis > 0 And Yes OUTPUT “Your X\_Axis and Y\_Axis lie in Quadrant I**

**Y\_Axis > 0?**

**No**

**IS X\_Axis < 0 And Yes OUTPUT “Your X\_Axis and Y\_Axis lie in Quadrant II**

**Y\_Axis > 0?**

**No**

**IS X\_Axis < 0 And Yes OUTPUT “Your X\_Axis and Y\_Axis lie in Quadrant III**

**Y\_Axis < 0?**

**NO**

**IS X\_Axis > 0 And Yes OUTPUT “Your X\_Axis and Y\_Axis lie in Quadrant IV**

**Y\_Axis < 0?**

**No**

**OUTPUT “AT origin”**

**PSEUDOCODE:**

**DECLARE X\_Axis, Y\_Axis AS FLOAT**

**OUTPUT "Enter X coordinate: "**

**INPUT X\_Axis**

**OUTPUT "Enter Y coordinate: "**

**INPUT Y\_Axis**

**IF (X\_Axis > 0) AND (Y\_Axis > 0) THEN**

**OUTPUT "Point (" + X\_Axis + ", " + Y\_Axis + ") lies in Quadrant I"**

**ELSE IF (X\_Axis < 0) AND (Y\_Axis > 0) THEN**

**OUTPUT "Point (" + X\_Axis + ", " + Y\_Axis + ") lies in Quadrant II"**

**ELSE IF (X\_Axis < 0) AND (Y\_Axis < 0) THEN**

**OUTPUT "Point (" + X\_Axis + ", " + Y\_Axis + ") lies in Quadrant III"**

**ELSE IF (X\_Axis > 0) AND (Y\_Axis < 0) THEN**

**OUTPUT "Point (" + X\_Axis + ", " + Y\_Axis + ") lies in Quadrant IV"**

**ELSE IF (X\_Axis = 0) AND (Y\_Axis ≠ 0) THEN**

**OUTPUT "Point (" + X\_Axis + ", " + Y\_Axis + ") lies on Y-axis that is x = 0" #CHECK**

**ELSE IF (Y\_Axis = 0) AND (X\_Axis ≠ 0) THEN**

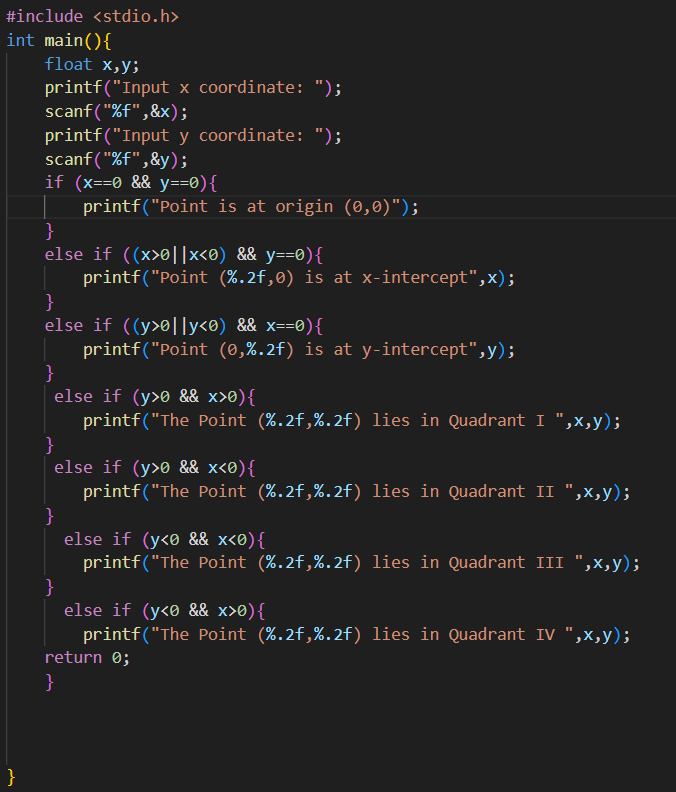
**OUTPUT "Point (" + X\_Axis + ", " + Y\_Axis + ") lies on X-axis that is y = 0" #CHECK**

**ELSE**

**OUTPUT "Point at origin"**

**END IF**

**C-CODE:**

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