Programming Fundamentals

BS (CS) _Fall_2025

Lab_02 Tasks

Learning Objectives:

1. Pseudocode and Flowchart
2. Scratch

Lab Tasks

Submission Instructions

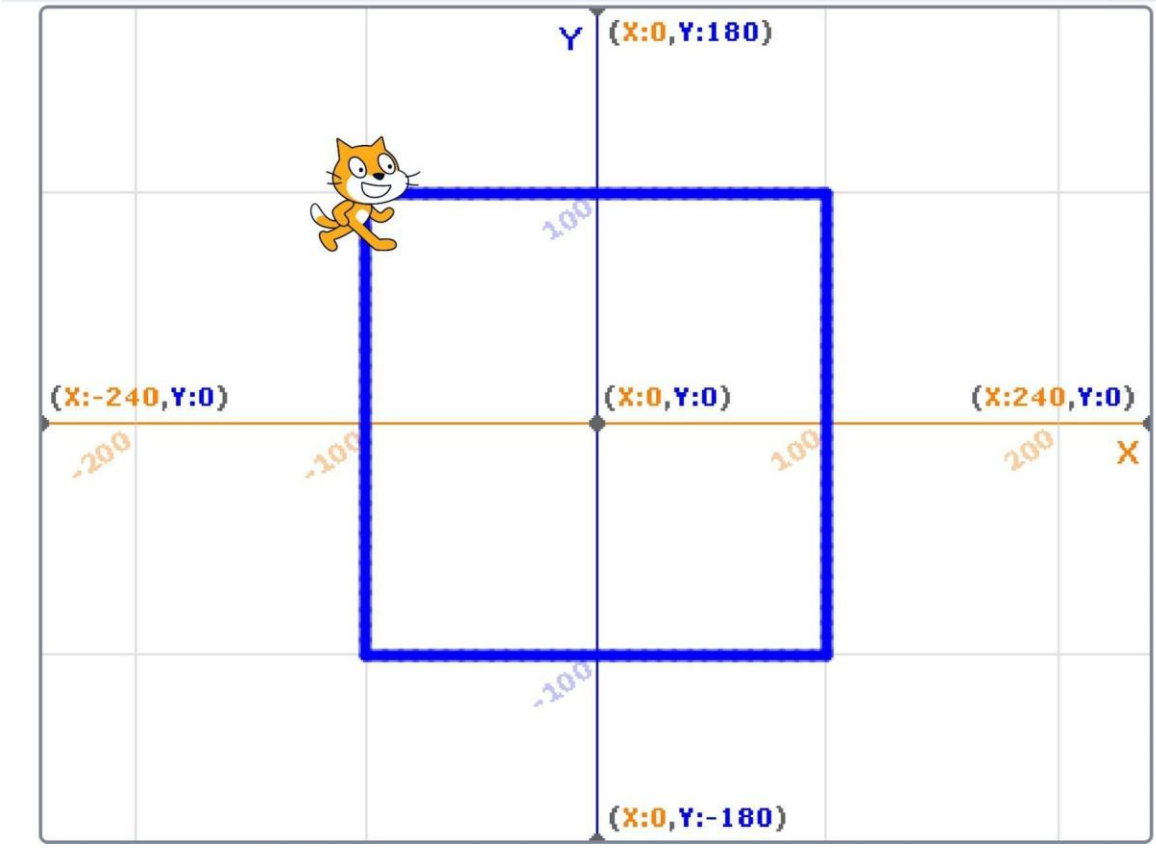
1. Create a new folder with name *ROLLNO_SEC_LAB02* **e.g. i25XXXX_A_LAB02**
2. Move all of your files to this newly created directory and compress it into a **.zip file**.
3. Now you have to submit this zipped file on Google Classroom.
4. If you don't follow the above-mentioned submission instruction, you will be marked **zero.**
5. Plagiarism in the Lab Task will result in **zero** marks in the whole category.

Zero Tasks

Q1. You are designing a simple video game where the player must pass levels. Draw a flowchart that:

1. Starts at **Level 1**.
2. Keeps unlocking the next level until the player reaches **Level 10**.
3. At each step, print: **"Level X unlocked!".**
4. At the end, print: **"Congratulations, you finished the game! □".**

Q2. Create a program that makes your character move around and draw continuously. You can use **pen down** block to draw something.nReference figure is given below for your help.



Lab Tasks

Q3. Design a flowchart that takes two numbers as input and print the maximum number.

Q4. Design a flowchart that takes the % FAST entrance score and the % academic score as input from students and decides whether the student will be admitted to the FAST CS program or not. The threshold of the CS program is closed at 70. The aggregate is calculated by giving 50% weightage to both entrance and academic score. Let's suppose the total marks of entrance exam and academic exam are 100 and 1000 respectively. For example:

% FAST entrance score = 70

% Academic Score = 80 Total Score = 50%*70 + 50%*80 Total Score = 35 + 40

Total Score = 75 > 70 (CS Threshold)

Hence, the student is admitted to FAST CS Program

Q5. Design a simple game where the cat sprite moves around the screen to catch a star. When the cat touches the star:

- The star moves to a random position.
- The score increases.
- A fun sound plays.

Steps

Step 1: Sprites

- Keep the **cat** as the player.
- Add a **star** sprite (from Scratch library).

Step 2: Move the Cat with Arrow Keys

For the cat sprite:

- when right arrow key pressed → move 10 steps
- when left arrow key pressed → move -10 steps
- when up arrow key pressed → change y by 10
- when down arrow key pressed → change y by -10

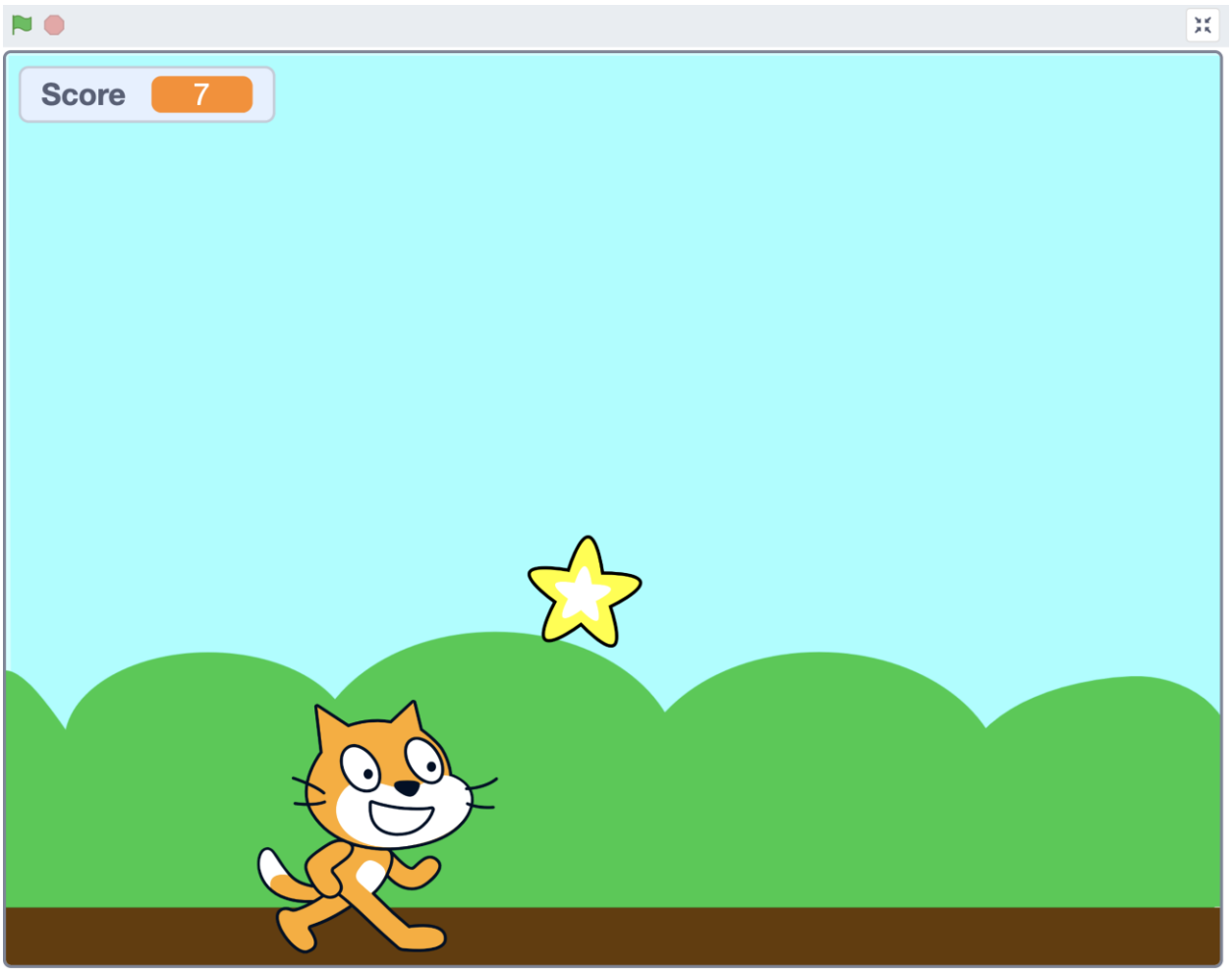
Step 3: Add a Score Variable

- Create a variable called **Score**.
- Set Score = 0 when the game starts.

Step 4: Star's Random Position

For the star sprite:

- when green flag clicked → forever → if touching cat then:
    - change Score by 1
    - play sound
    - go to random position


Score
7