

Lab Manual  
Introduction to Information & Communication Technologies

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Course Instructor  
Semester

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BS(SE) Fall 2021

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# Week-03

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## Objectives

After performing this lab, students shall be able to:

- Report generation and water marking
- Styles, themes and table of contents
- Get familiar with the scratch environment
- Explore the basic tabs of scratch
- Implement basic sequencing, branching and iterations in scratch.

## Task List

### Task-1 Create Report & Visiting Card

#### Step 1:

Choose an idea for a company, society or institute of IT. Write an introductory report of two pages. Insert Table of Contents and a title page. Total report must be of 4 pages. (Title page, Table of Contents, and 2 pages of text). Use Styles of Title, Heading 1, 2, 3, so on and Normal text formatting along with themes. Add your watermark in document.

#### Step 2:

Design a visiting card for you with the name of your chosen company, society or institute. You can use MS Word Template library. A sample card is:

Sample visiting card for Lab Assignment

#### Step 3:

Upload over the CUportal.

### Task-2 Learn the Scratch

Open Website: <http://scratch.mit.edu/>

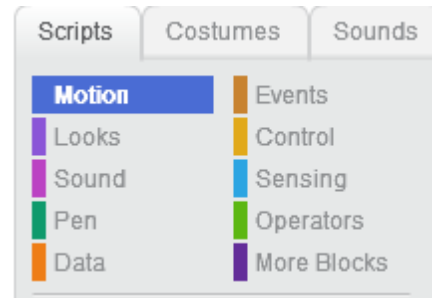
This cat is our **sprite1**. It is placed at **x=0 and y =0** (the centre of canvas X range: - 240 (left) to 240 (right) and Y range: -180 (down) to 180 (up)). You may see the tabs

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in this screen shot: scripts, costumes and sounds.

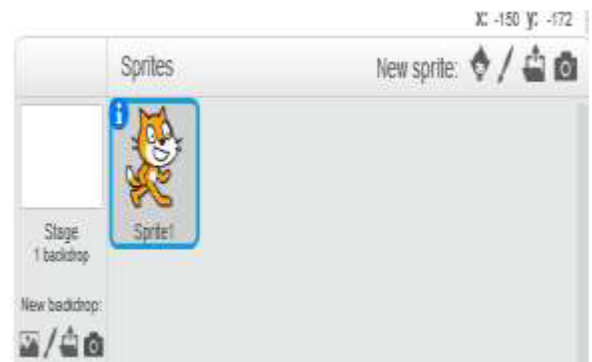
Scripts are divided into different groups. Explore the groups.

On the right side, there are File and Edit tab. And on the upper left side, there are duplicate, delete, grow and shrink commands that can work on a sprite.



On the down side of canvas, you may see Stage (For background purpose), right beside it, Sprites (there would be many) and other options related to sprite (library, painting and etc).

Get familiar yourself with this environment.



### Task-3 Animate your sprite along with arrow keys

In games, usually we start our game with a START button or by clicking or tapping on screen. In scratch scripts, we also start our script by some event. You may find it in **Event tab**.

**Your script must always start with an event.** You may choose one of the following events for this task:

- When Green Flag is clicked
- When Space (key) is pressed
- When this sprite is clicked.

For creating script you just have to drag you chosen command and drop it to left grey area.

Notice, each command has specific shape showing the connection sequence for further commands. All event commands are showing that these can be used only as first command (No connectivity is possible above it). Got It! Lets start working for animation.

In games, usually character's movements are being controlled by arrow keys or A,W,S,D combination. Now think about control constructs. We have studied

Condition and Loops. If keys are being pressed and we have to work accordingly then there must be some conditions that would be checked.

So If Right arrow key is pressed, it means our sprite should move in right direction. You may find if command in **control tab**.

And we have four directions so we may apply 4 if conditions each for one direction or precisely for one key. It means if that key is pressed then we can work accordingly.

There is our first if, please notice that its condition area is empty yet. And its action area (true clause) is also empty. So we have to fill both blanks. We have to check key pressing, it can be found in **Sensing tab**. Select key pressed sensing and drop it on if. When you hover the selected command on if's empty condition area, it will glow. Place it here. And Select right arrow key from drop-down list.

Now we have to associate an action with pressing of right arrow key. As X is +ve for right direction. We can choose this action from **motion tab**. Let take change x by 10.

Place this command in if's true clause.

Now duplicate this if by **right clicking** on it. And change the keys and their actions. Your script must have 4 if commands. **HOLD!**

As we all know if condition is checked only once. And then execution goes in sequential manner. So if we want that our sprite to move on **EACH** key Press. We have to repeat all these conditions. Here's loop in **control tabs**.

Choose forever repeat and all of yours if must be in it. Now you may execute your first script of scratch by triggering the event. You may add sounds in if actions.