

## **Q.21 Is it possible to display the entire contents of another web page in our HTML page? How?**

An HTML iframe is used to display a web page within a web page. The <iframe> tag defines a rectangular portion within the document in which the browser can display another document, including the scrollbars and borders. An inline frame is used to embed another document within the current HTML document.

## **Q.22 List some popular text editors and other tools which help in designing and development of websites.**

### **WEB DESIGNING TOOLS**

Following is the list of some of the tools that help in designing and developing a website.

- Microsoft FrontPage
- Microsoft Visual Studio
- Adobe Dreamweaver
- WordPress
- Coral Draw
- Adobe XD
- Wix
- Figma
- CoffeeCup HTML Editor

MCQs	Match column
1. b	(1) f
2. c	(2) g
3. d	(3) h
4. a	(4) e
5. c	(5) f
6. c	(6) s
7. d	
8. a	
9. c	
10. c	

**bgcolor:** This attribute is used to change the color of the entire web page. Its color value can be defined as RGB code, hexadecimal code, or by color name. For instance, to set the background color of the web page to green, we can use any one of these values: `rgb(0,255,0)` : `#00FF00` : green. e.g. `<body bgcolor="green">`

**background:** This attribute is used to display an image as the background of the web page. Its value will be the reference or URL of the background image. e.g. `<body background="image.jpg">`

### Q.17 How can a user be redirected to another web page?

#### Hyperlinks

A Hyperlink is a reference to data that the user can follow by clicking. A Hyperlink redirects to a web page whole document or a specific element within a document. Hypertext is text with hyperlinks.

### Q.18 How can we create a Hyperlink to an external web page or within the same web page?

A Hyperlink is defined by the tag and its attribute. The value is the reference of another web page or a different section on the same page.

**Links to external document:** To send a user to any other web page, use the URL of that page as the value for attribute.

For example: `<a href="http://www.google.com">Google</a>`

**Links within the same document:** Setting the link within the same page requires two steps:

1. Use attribute of any HTML tag to give a name to the section of the page, where a user should reach after clicking on the link.
2. Create a hyperlink and set the above name as attribute of this link, starting with hash (#) symbol.

For example: `<p id="navigate"> Send user here on click </p>`

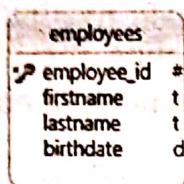
`<a href="#navigate"> Go to the linked paragraph</a>`

Attribute	Value	Description
Href	URL	Specifies the URL or section id of the page the link goes to.
Name	Section Name	Specifies the name of an anchor.
target	_blank : _parent : _self : _top : framename	Specifies where to open the linked document.

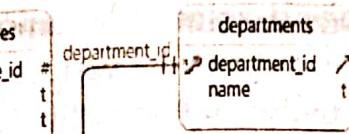
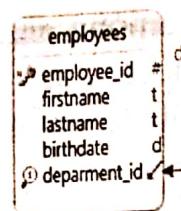
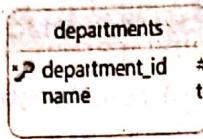
## Understanding relationship and referential keys

### Example:

Consider the two tables below. If the two are missing foreign keys, and we delete a department, then the employees associated with it will remain in the employee table as "bad records". These scenarios happen very often and leads to a database full of junk that decreases performance.



Without Foreign Keys



With Foreign Keys

### Q.15 List the major characteristics of Primary and Foreign keys.

#### Characteristics of Primary Keys:

- Primary key uniquely identifies a record in the table.
- Primary Key can't accept null values.
- Primary key is clustered index and data in the database table is physically organized in the sequence of clustered index.
- We can have only one Primary key in a table.

#### Characteristics of Foreign Keys:

- Foreign keys are a field in the table that is primary key in another table.
- Foreign keys can accept multiple null value.
- Foreign keys do not automatically create an index, clustered or non-clustered. You can manually create an index on foreign key.
- We can have more than one foreign key in a table.

### Q.16 Explain Entities, Attributes and Relationships with one example of each.

#### Entities:

In database administration, an entity can be any item about which the data should be captured and stored in the form of properties, workflow and tables e.g. person, place, unit, object etc.

#### Attributes:

An attribute defines the information about the entity that needs to be stored. If the entity is an employee, attributes could include name, employee ID, health plan enrollment, and work location. E.g. **Name:** Jane Doe; **Employee ID:** 123456; **Work Location:** RO, ME, Floor 2.

A relationship is when there are two database tables, one table uses a foreign key that references the primary key of another table. For example, if there are two entities 'Person' (Id, Name, Age, Address) and 'Passport' (Passport ID, Passport N.o.), the relations between these are that one person owns a password to his name.

#### Q.17 Write three benefits of using Relationships in the Database.

##### Benefits of Relationships in the Database:

- It establishes a connection between a pair of tables that are logically related to each other.
- It helps to further refine table structures and minimize redundant data.
- It is the mechanism that enables you to draw data from multiple tables simultaneously.

#### Q.18 Define the term 'Entity-Relationship Model'.

##### Entity Relationship Model (ERM)

Entity-Relationship Model (ERM) or Entity Relationship Diagram (ERD) describes the entities, attributes, and relationships with their types in a simplified diagram. This model or diagram can itself be used as a reference for designing an actual database. It can even be used as a backup for the structure of a database.

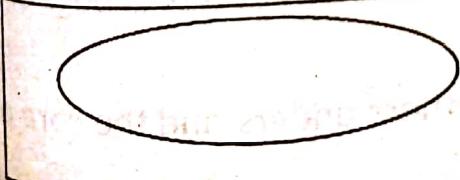
The ERD can be used in two ways:

- When the database has not been created yet. The ERD helps in creating a clear representation of the entire database based on user requirements.
- When an existing database needs to be documented. The Database development tool features the automatic creation of ERD based on the existing database, which facilitates documentation.

#### Q.19 Draw and define the Components of ER Diagram.

##### Components of ER Diagram

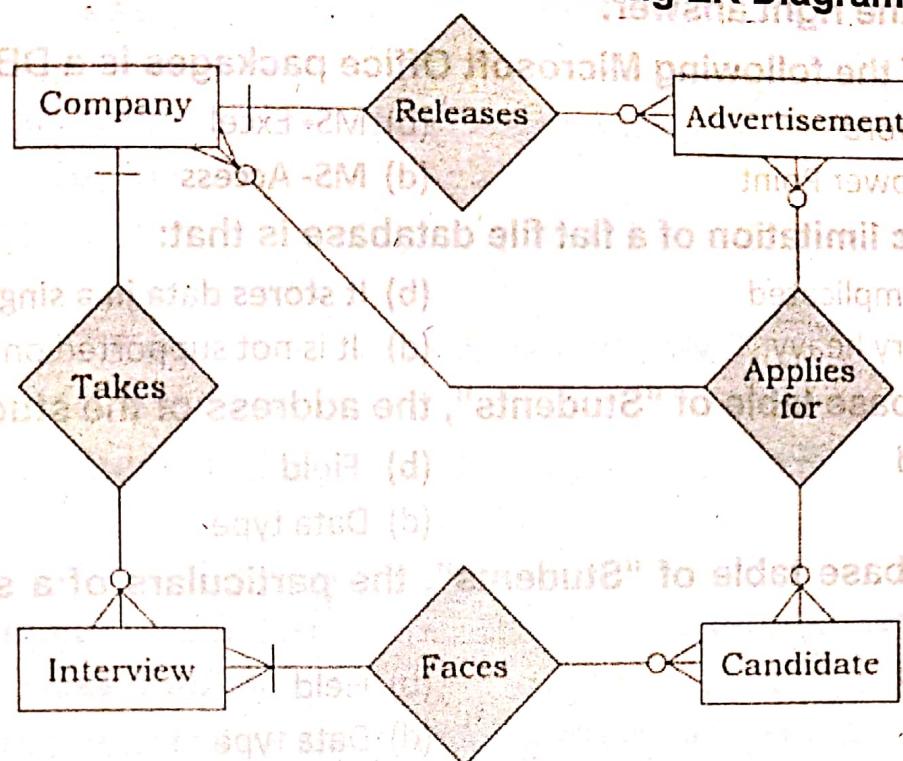
ER Design is made up of different components like Attributes, Relationships, etc. There are defined symbols and shapes to represent each one of them. Some of the shapes used to define these components are:

	A rectangle is used to define an entity. This can be any real-world object like Student, Teacher, Class, etc.
	An ellipse defines an attribute of an entity. One entity may contain multiple attributes and are defined by multiple ellipses.

It communicates the logical structure of the database to the users.

An ER Diagram is considered as the blueprint of the database.

Q.23 Write any two statements from the following ER Diagram.



### Sample ER Diagram for the statement

"A Company releases advertisement to taken interview candidates faces applied for" is discussed below:

Here in this example, diagram shows that:

1. Company
2. Advertisement
3. Interview
4. Candidate

Relationships are in Diamond shape

1. Releases
2. Faces
3. Takes
4. Applies for

Access allows

#### Views

A database view is a subset of a database that is based on a query that runs on one or more database tables. Database views are saved in the database as named queries and can be used to save complete queries that are frequently used.

#### Q.9 Why is it important to carefully decide the data type for each field?

In modern DBMS, carefully choosing the right data types for your tables, stored procedures, and variables is important as it improves performance by ensuring a correct execution plan, database runs faster and it also improves data integrity by ensuring that the correct data is stored within a database.

**ANSWER KEY**

Q. No.	Answers								
1	d	3	b	5	d	7	a	9	a
2	b	4	a	6	c	8	a	10	d

**C. Match the columns:**

S.No.	A	S.No.	B	C
i	Primary key	a	Attributes	iv
ii	Integer data	b	Always unique value in field	i
iii	Relationship	c	Data in plain text form	vi
iv	Field	d	Number without decimal point	ii
v	View	e	Connection between two tables	iii
vi	Flat file system	f	Shows virtual data	vii
vii	Entity	g	Table with its own attributes	v

1. Create few tables and practice adding data and relations in MS Access.

Q5. Explain the purpose of truth table.

Ans: **TRUTH TABLE**

Truth table is a systematic listing of the values for the dependent variable in terms of all the possible values of independent variable. Truth table representing the condition of input and output circuit which involves two or more variables. Formula of truth table is  $2^n$ .

Where n is the number of variables used in operation.

**EXAMPLE**  
 $A + B = X$

INPUT		OUTPUT
A	B	X
0	0	0
0	1	1
1	0	1
1	1	1

**Q.6.** Simplify the following Boolean expressions.  
 $Z = AB + A(B + C) + B(B + C)$

**Solution**

Take L.H.S

$$AB + A(B+C) + B(B+C)$$

$$AB + (B+C)(B+A)$$

Take  $(B+C)$  common

According to the rule 12  $(A+B)(A+C) = A+BC$  so,  $(B+A)(B+C) = B+AC$

$$AB + B + AC$$

Rule 12  $(B+A)(B+C) = B+AC$

$$B(A+1) + AC$$

Take B common

$$B(1) + AC$$

Rule 2  $(A+1) = 1$

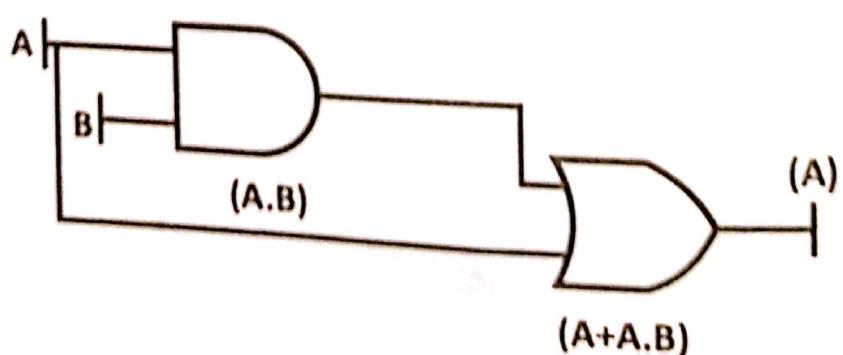
$$B + AC$$

Rule 4  $B(1) = B$

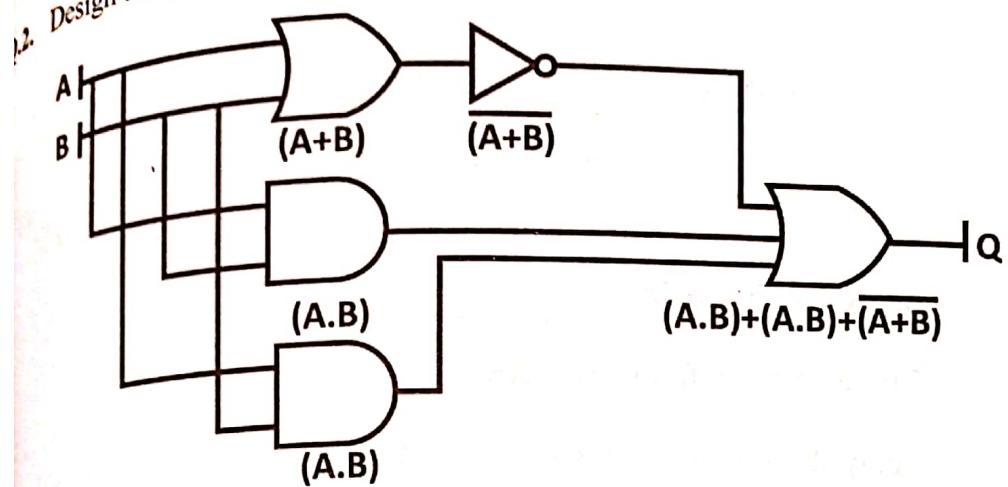
Hence  $Z = B + AC$

## LAB ACTIVITIES

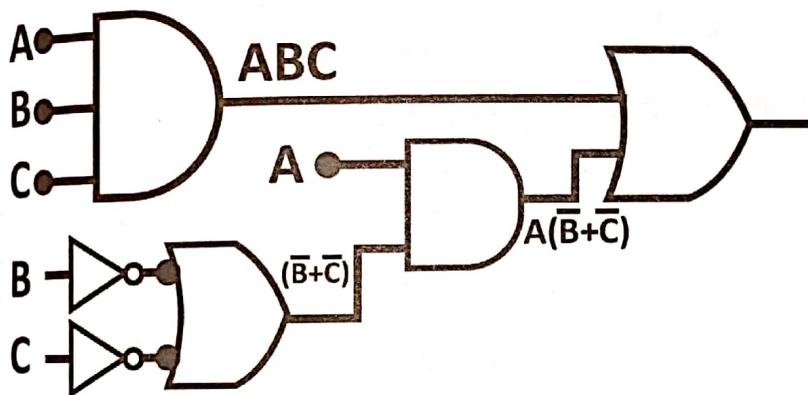
**Q.1.** Draw a logic circuit of 10<sup>th</sup> law of Boolean algebra.



Design a logic circuit from Boolean expression  $Q = (A \cdot B) + (A \cdot \bar{B}) + (\bar{A} + B)$



- Derive the Boolean expression from the given circuit and make a truth table and simplify that Boolean expression.



### Boolean Expression

$$Q = ABC + A(\bar{B} + \bar{C})$$

### Truth Table

A	B	C	$\bar{B}$	$\bar{C}$	$\bar{B} + \bar{C}$	$A(\bar{B} + \bar{C})$	$ABC$	$ABC + A(\bar{B} + \bar{C})$
0	0	0	1	1	1	0	0	0
0	0	1	1	0	1	0	0	0
0	1	0	0	1	1	0	0	0
0	1	1	0	0	0	0	0	0
1	0	0	1	1	1	1	0	1
1	0	1	1	0	1	1	0	1
1	1	0	0	1	1	1	0	1
1	1	1	0	0	0	0	1	1

## Simplification

$$ABC + A(\bar{B} + \bar{C})$$

**Solution:**

L.H.S

$$ABC + A(\bar{B} + \bar{C})$$

$$ABC + A\bar{B} + A\bar{C}$$

Apply distributive law

$$A(BC + \bar{B}) + A\bar{C}$$

Take a common from  $ABC + A\bar{B}$

$$A(C + \bar{B}) + A\bar{C}$$

Apply absorption law  $AB + \bar{A} = B + \bar{A}$

$$AC + A\bar{C} + A\bar{B}$$

Apply distributive law

$$A(C + \bar{C}) + A\bar{B}$$

Take a common from  $AC + A\bar{B}$

$$A(1) + A\bar{B}$$

Rule 6  $C + \bar{C} = 1$

$$A + A\bar{B}$$

Apply absorption law  $A + A\bar{B} = A$

$$A$$

**Q.4. What is the difference between using Scratch online and offline?**

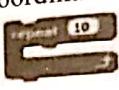
Ans: Using scratch online allows you to communicate with the community like what you're doing right now in this message. On scratch offline you can only make projects and upload or download them. In online you can see everyone's shared projects and can share your own projects to the community. You can also use discuss and chat about things with specific topics.

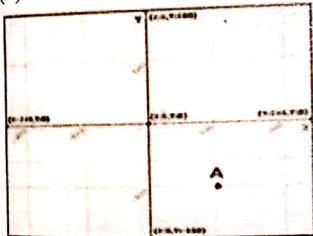
**Q.5. In your notebook, mark the color of each pallet in Script tab. One is done for you. How are these colors helpful for the user?**

Ans: These colors are helpful for the user in a way that user differentiates between commands that are using in script tab.

## EXERCISE 7

### A. ENCIRCLE THE CORRECT ANSWER:

1. The feature of Scratch is \_\_\_\_\_.  
(a) It is a visual  
(b) It is free  
(c) No need to remember codes  
(d) All of these d
2. In Scratch, the character which moves on the Stage is called a \_\_\_\_\_.  
(a) Sprite  
(b) Command  
(c) Script a
3. Repeat 10, forever and if... then codes are available in \_\_\_\_\_.  
(a) Motion  
(b) Control  
(c) Look b
4. The looks of sprites can be changed by using \_\_\_\_\_.  
(a) Backdrop tab  
(b) Costume tab  
(c) Script tab b
5. A scratch program is at least made up with \_\_\_\_\_.  
(a) Many scripts  
(b) One sprite and code  
(c) One sprite  
(d) One sprite and backdrop c
6. To change the position of sprite on screen, we use \_\_\_\_\_.  
(a) Coordinates  
(b) Stage information  
(c) Command pallets  
(d) Costume tab a
7.  can be found under \_\_\_\_\_.  
(a) Look  
(b) Motion  
(c) Sound  
(d) Control b
8. Turn command, turns sprite to specified:  
(a) Coordinate  
(b) Steps  
(c) Degree  
(d) Seconds c
9. This  command is available in \_\_\_\_\_.  
(a) Event  
(b) Control  
(c) Motion  
(d) Looks b
10. In the given picture, identify the X and Y coordinates (positions) point A:  
(a)  $x = 100, y = -100$   
(b)  $x = -100, y = 100$   
(c)  $x = 100, y = 100$   
(d)  $x = -100, y = -100$  a



### B. Respond the following:

#### Q.1. Explain the following:

- Script
- Sprite
- Backdrop

Ans: See Page i (109), ii (109), iii (110)

#### Q.2. State the difference between repeat 10 and forever commands.

Ans: See Page 113

#### Q.3. Write the use of the following codes: forever, wait, say, play sound, go to x, y.

Ans: See Page 113 and 114

## UNIT 7

# INTRODUCTION TO SCRATCH

What do you know about scratch?

Write down the downloading & installing procedure of scratch.

Define scratch Environment.

Define sprites in scratch.

Define scripts in scratch.

### SCRATCH

Scratch is a visual programming language for children to utilize their imagination and interact with computers. By using a simple block-like interface children can create simple programs. Scratch helps in teaching coding, computer science, and computational thinking. It is used to assist in other subjects including math, science, history, geography, and art etc. Scratch was developed by MIT Media lab's Lifelong Kindergarten group, led by Mitchel Resnick in 2003. It started with version 1.0 then came 2.0 in 2013 and in 2019 the latest release of 3.0 is released.

### DOWNLOADING AND INSTALLING SCRATCH

Scratch can be downloaded and installed on computer or any android device. For downloading the latest version, you would need Windows 10 for PC or Android 6 or later versions vice versa. Scratch 2.0 can be downloaded from the website: <https://scratch.mit.edu/download/scratch2>

### PROCEDURE

- After download scratch, run executable file.
- A dialog box will be appeared in which you will select location.
- The installation process will be started. After installation scratch will be ready to use.

### UNDERSTANDING SCRATCH ENVIRONMENT

Two basic concepts included in scratch are Sprites and Scripts.

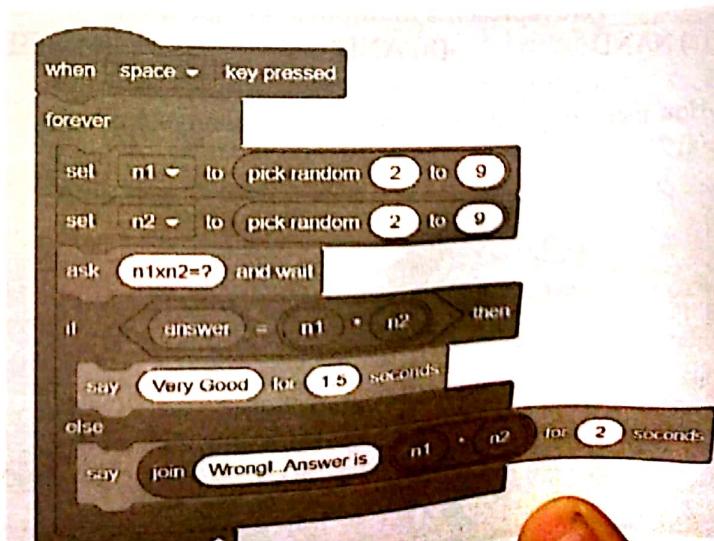
### SPRITES

Sprite is a graphical image that moves around on stage. By default, it is the orange cat but there are multiple sprites in project. It can be animated and manipulated by the code. Sprite can be dragged & dropped to any location on the stage.



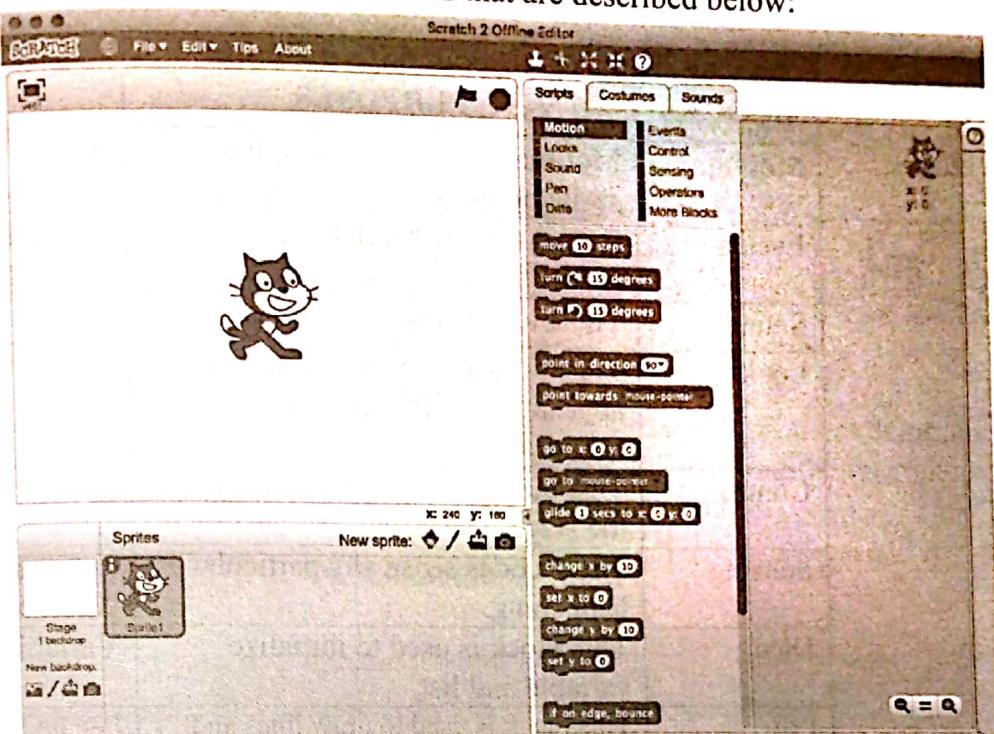
### SCRIPTS

The scripts are the instructions that tells the actors what to say or do. Each sprite is programmed with a script. To create any task like create a game, interactive story, animation or artwork, scripts are used.



## SCRATCH EDITOR

Scratch editor contains different elements that are described below:



### STAGE OR STAGE PREVIEW WINDOW

Stage is the area where all actions take place. All of the codes you write will make something happen on the stage. It is the main working area where the sprites move and perform action. The stage uses x and y coordinates. These coordinates indicate the position of the sprite on working area.

### SCRIPT AREA

Script area is the place where actually the code is assembled by dragging command blocks from the block palette. The script is for a specific sprite select from the sprite pane.

### SPRITE LIST

Sprite list is placed at the bottom of the sprite pane which shows all sprites that are part of project or program. By default, the orange cat is displayed. There is a circular icon to choose a sprite there.

### BACKDROP

A backdrop is an image that can be shown on the stage. There is no background added in a project by default. The stage look can change to any of its backdrops using the backdrop library.

### SCRIPT BLOCK

Script block is the main area that contains different script options. It has three different tabs.

### SCRIPT TAB

This area is used to write script or code. This is the place where you tell the sprite exactly what to do by giving commands.