



# Introduction to Scratch – Day 1

# Session overview:

- What is Scratch?
- What is the difference between text based and block based programming?
- What type of sensor we going to use?
- How to record your own voice for tone?
- What are the conditions in Scratch ?

# Introduction to Programming :

- A program is a set of instructions written in a language understandable by the computer to perform a particular function on the computer.
- A programming language provides a way for a programmer to express a task so that it could be understood and executed by a computer.

# **Text-based programming VS Block-based programming**

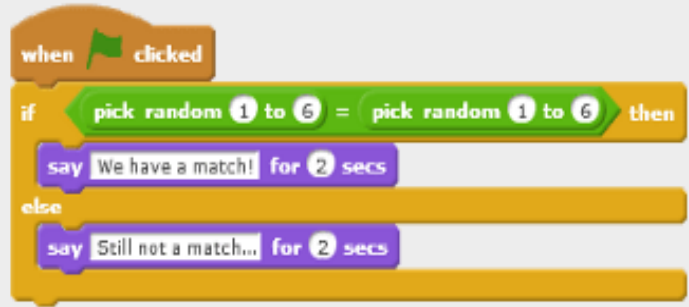
## **Text-based programming**

- In a text-based programming language, coding is done through typing various characters from a syntax, or list of codes readable by a particular language.
- Some text-based languages include: C++ Java.

## **Block-based programming**

- It is a form of programming language where the developer issues instructions by dragging and dropping blocks.
- This helps to prevent syntax errors and developers do not have to memorize syntax to write code.

# Block-based programming VS Text-based programming



```
#include <iostream>
#include <cstdlib>
#include <ctime>

int main()
{
    srand(time(0));

    int randMin = 1;
    int randMax = 6;
    const int offset = 1;

    int randOne = randMin + rand() % ((randMax - randMin) + offset);
    int randTwo = randMin + rand() % ((randMax - randMin) + offset);

    if (randOne == randTwo) {
        std::cout << "We have a match!" << std::endl;
    }
    else {
        std::cout << "Still not a match..." << std::endl;
    }

    return 0;
}
```

???

VS.

```
int randOne = randMin + rand() % ((randMax - randMin) + offset);
int randTwo = randMin + rand() % ((randMax - randMin) + offset);

if (randOne == randTwo) {
    std::cout << "We have a match!" << std::endl;
}
else {
    std::cout << "Still not a match..." << std::endl;
}

return 0;
}
```

# What is Scratch?

- Scratch is a free programmable toolkit that enables kids to create their own games, animated stories, and interactive art.
- They can share their creations with one another over the Internet.

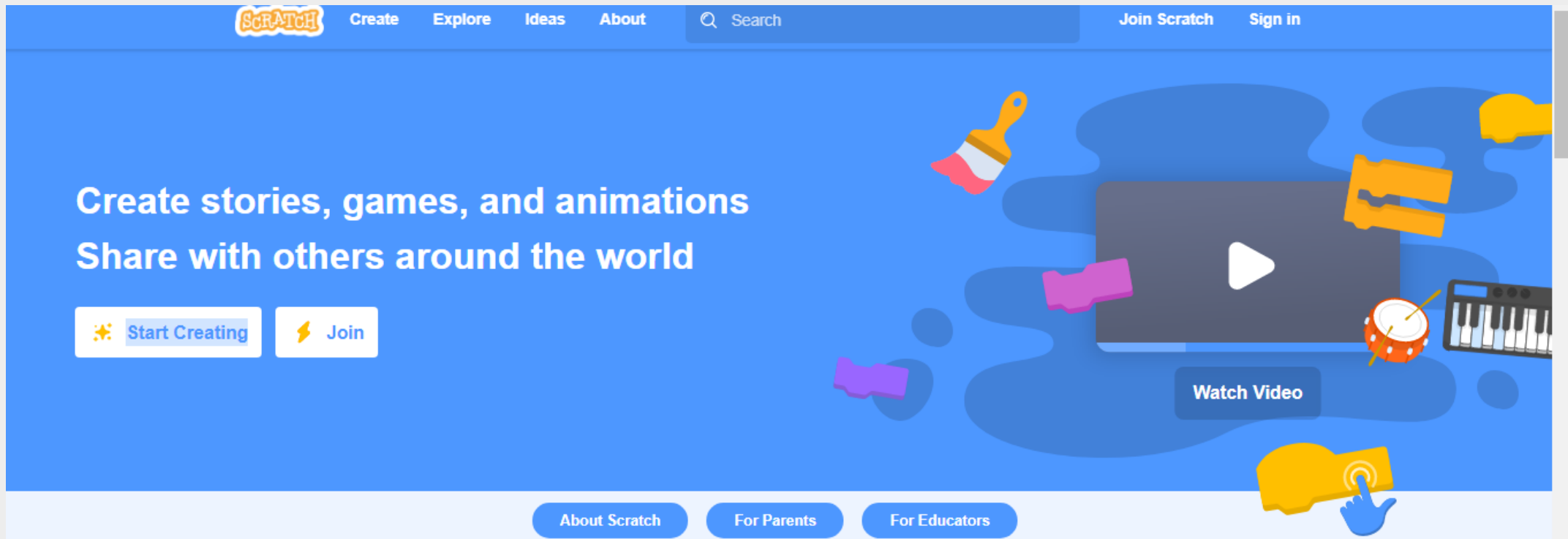
# Key Features of Scratch:

- Software designed to inspire children to learn how to program.
- It is free to download.
- Simple to use, lots of examples to learn.



# Getting Started With Scratch:

- Open <https://scratch.mit.edu/>
- Click on [Start Creating](#) to reach to the programming page.



# Main Page:

**Code:** you will find attributes and blocks are inside each attribute some are for moving ,sensing ,looks and so on.

**Costumes:** you can customize how the character(Sprite) you choose would look like after the change.

**Sounds:** if you add tone to your code you can edit the tone itself also record something and edit it.

Scratch interface showing the Code editor with Motion blocks, a video player, and the Sprite/Stage panels.

**Scratch** | File | Edit | Tutorials | Join Scratch | Sign in

Code | Costumes | Sounds

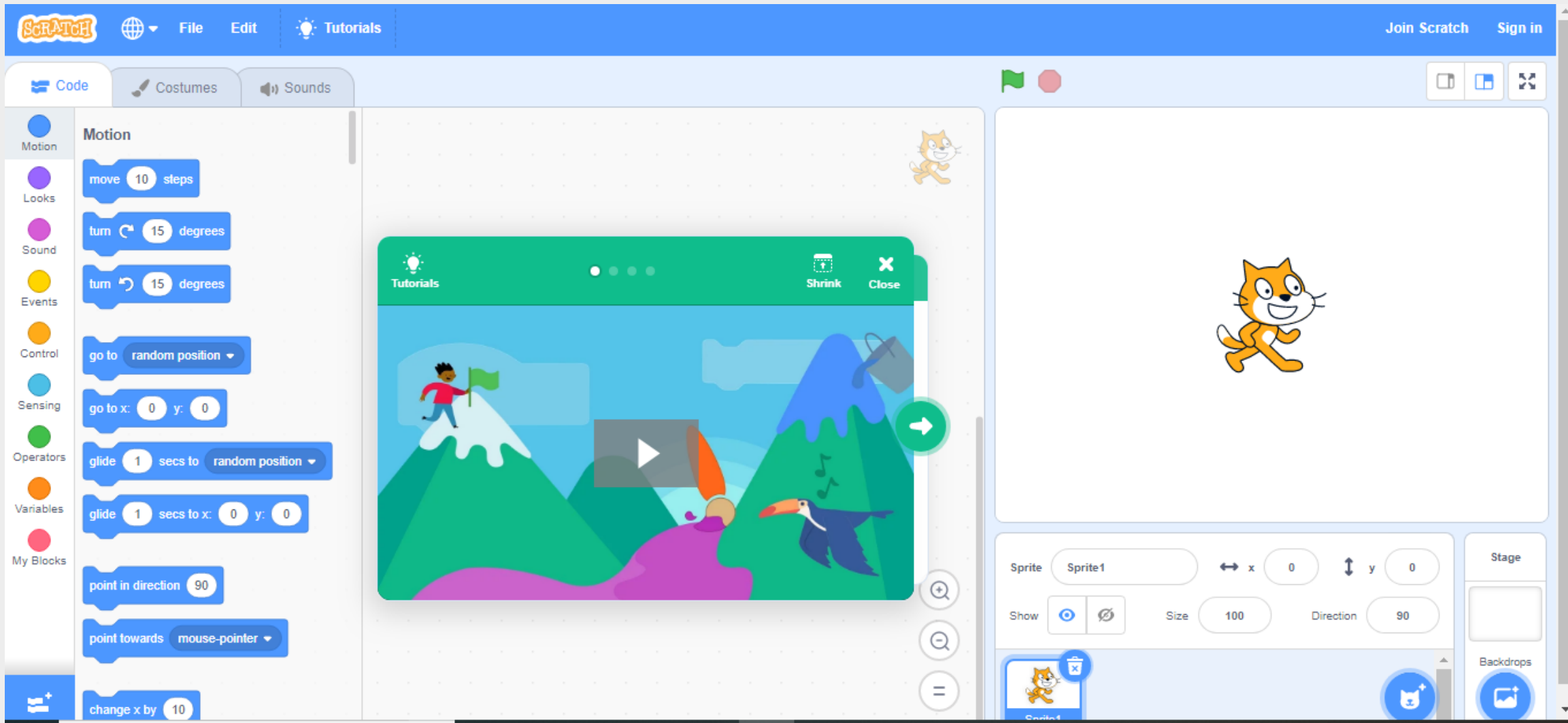
**Motion**

- move 10 steps
- turn 15 degrees
- turn 15 degrees
- go to random position
- go to x: 0 y: 0
- glide 1 secs to random position
- glide 1 secs to x: 0 y: 0
- point in direction 90
- point towards mouse-pointer
- change x by 10

Tutorials | Shrink | Close

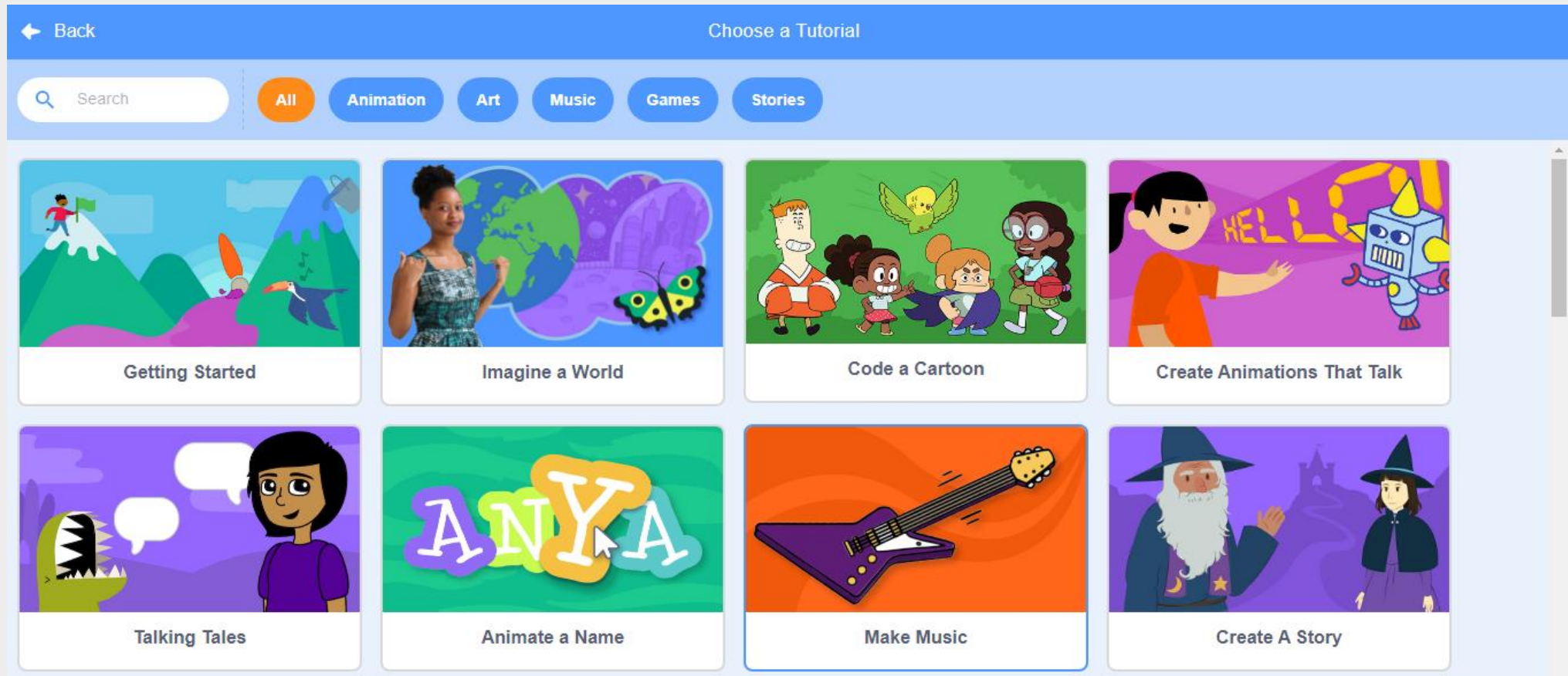
Sprite: Sprite1 | x: 0 | y: 0 | Show: [ ] [ ] | Size: 100 | Direction: 90

Stage | Backdrops



# Tutorials:

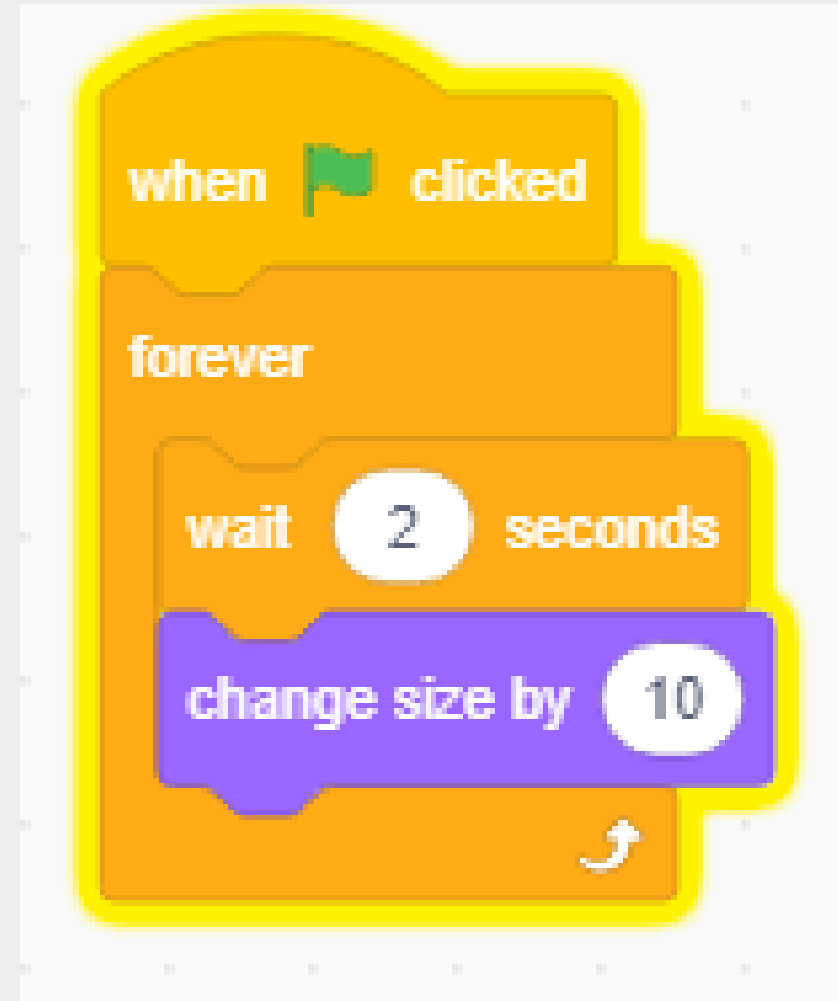
It helps the beginners to adapt with it and learn how to create their own story animation and building their game.



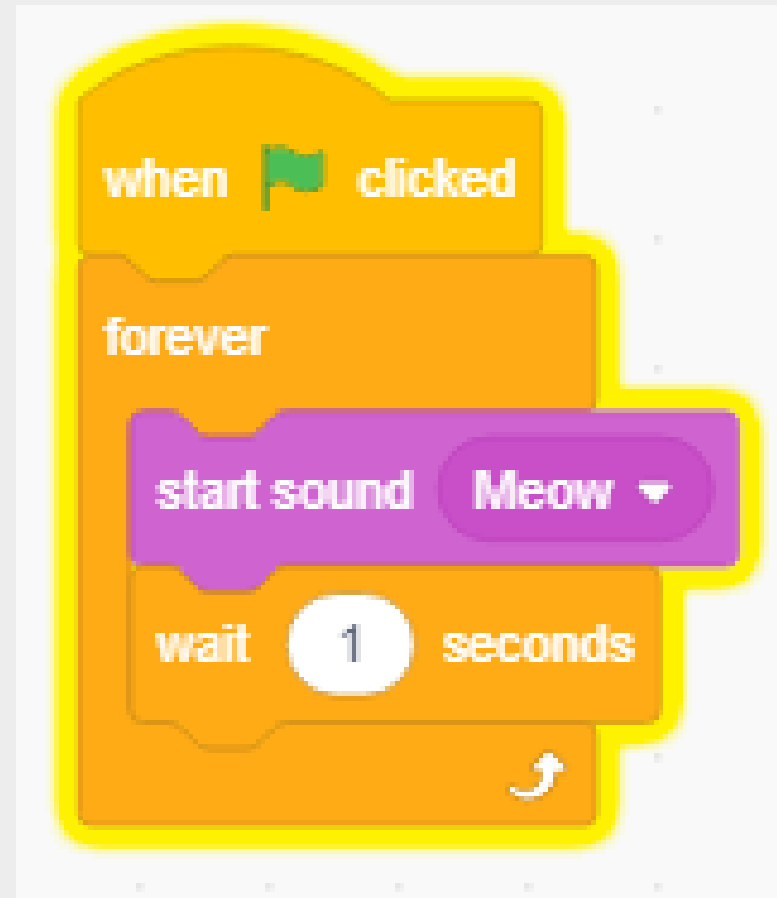
# Activities:

1. Move 20 steps.
2. Turn sprite 180 degree.
3. Sprite to a random place.
4. Go 10 steps in y .
5. Go 10 steps in x.
6. Change sprite size every 2 seconds.
7. Use loop in your code.
8. Use condition on your code.
9. Create a score.
10. Play a Tone + record your voice.

## 6. Change sprite size every 2 seconds



## 7. Use loop in your code.



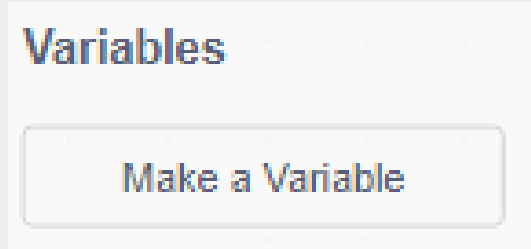
## 8. Use condition on your code.



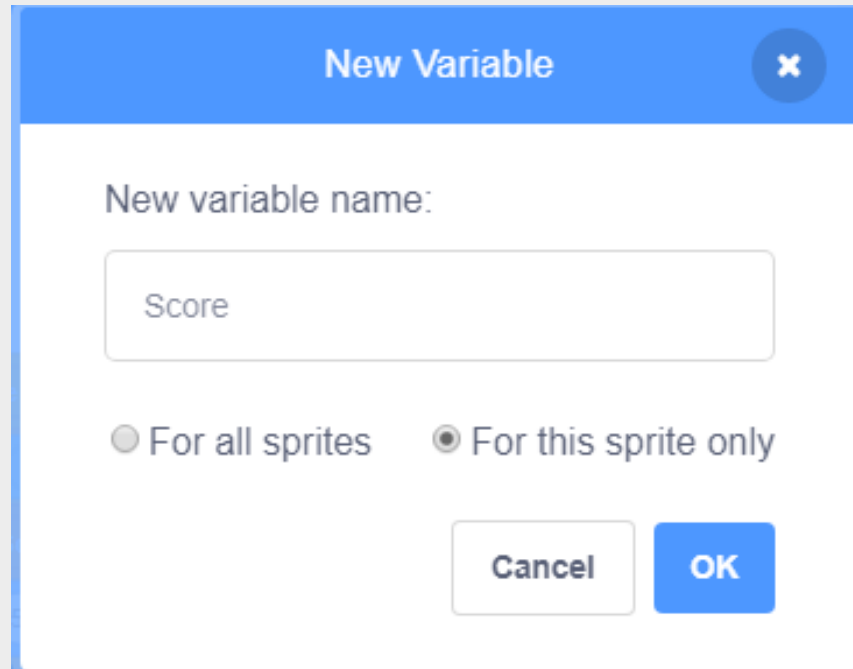


## 9. Create a score

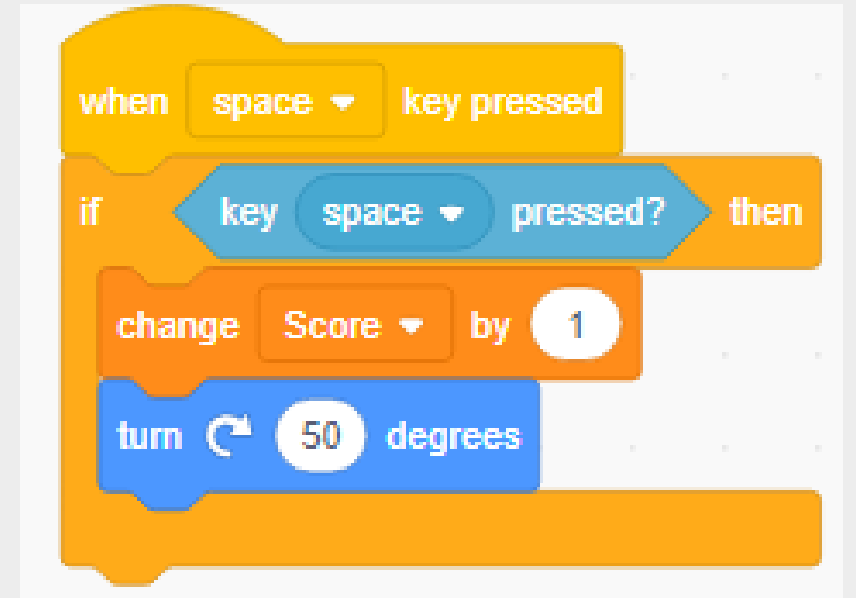
• 1<sup>st</sup>



2<sup>nd</sup>



3<sup>rd</sup>



# Session review :

- What have you learned about Scratch in today's session?
- What are the various sensing blocks?
- How does the condition work?
- How can you record your own voice?

**THANK YOU!!**