

What is computer programming?

A computer program is a set of instructions that a computer follows to complete a specific task.

The formal definition of Computer programming:

“Computer programming is the process of designing and building an executable computer program to accomplish a specific computing result or to perform a specific task.”

What are the programs made from?

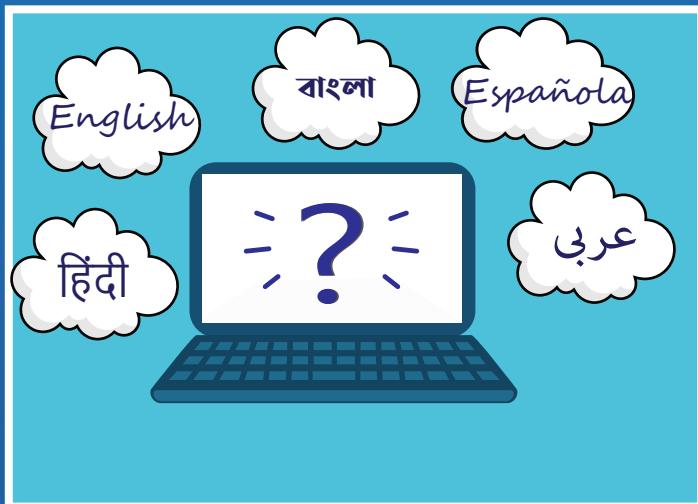
Computer programs give instructions in computer languages.



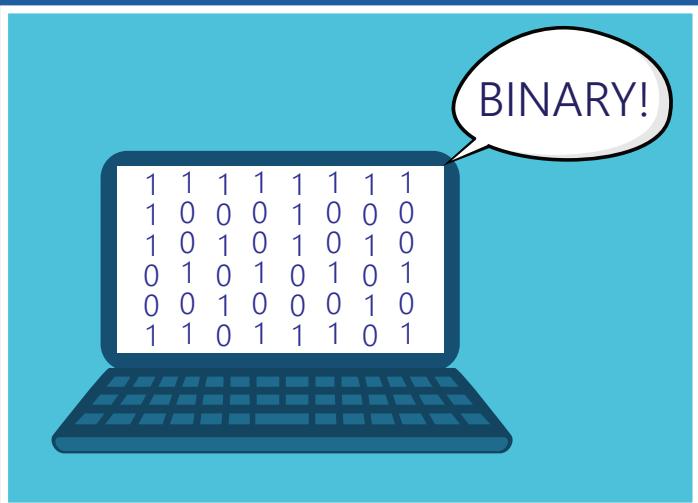
Computers can't think for themselves.



We can't talk to it like a person.



Computers do not understand our language.



Computers only understand binary digits (0 and 1).

Humans understand letters, numbers and special characters

ASCII

AMERICAN
STANDARD
CODE FOR
INFORMATION
INTERCHANGE

An international organization American Standard Code for Information Interchange in short ASCII is responsible for managing these alphabets, numbers and special chars.

In order to make computers understand Every character is changed to a unique decimal value. As we know computers do not understand human language like alphabets, numbers and special chars(ASCII characters). So we need to convert these decimal values into binary form.



If we want a computer to do something like 'make a game' we can't just tell it to.

We need to give step by step instructions for how to make a game in a language that it understands. Code!

Computer code is usually made out of words and numbers.(ASCII character)

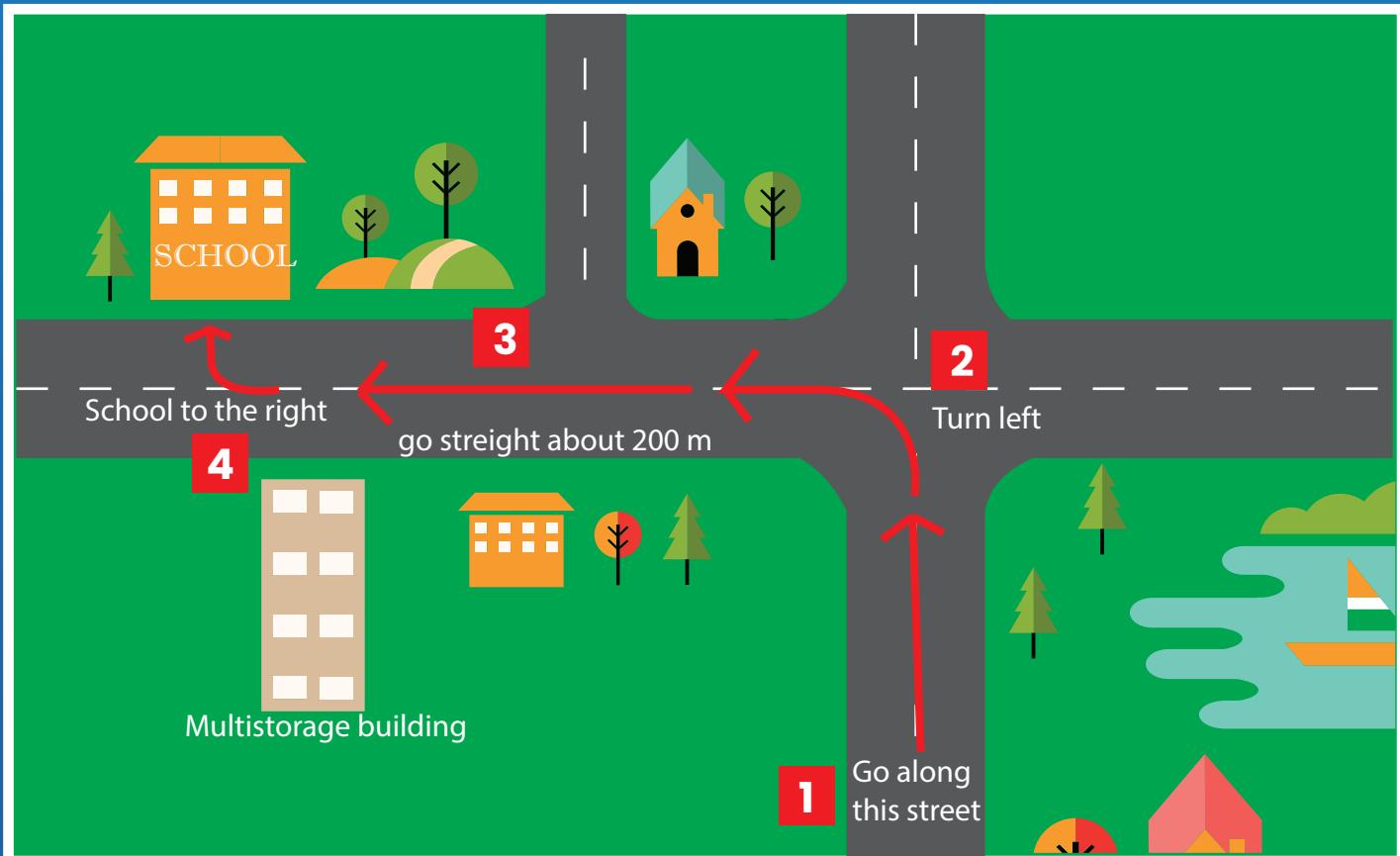
```
package main
import "fmt"
func main() {
    fmt.Println("Hello world")
}
```

You can see a basic golang code above. We know the characters in the code but we don't understand its meaning. Computers understand it. Because it is a computer language (golang) code.

Programmers write this code so our computers can follow instructions and understand what needs to be done.

We shall learn about coding but in this chapter we shall discuss the basics.

Let's see how Job Melton will give instructions to a stranger about the location of his school.



Job Melton

Go along this street and you'll come to a big cross-roads. Turn left. Go straight about two hundred meters, and you will see a high rise building. Go past and the school is on the right.

Got it.

1. Go along—come to crossroads
2. turn left
3. go about two hundred meters—high rise building
4. school on the right.

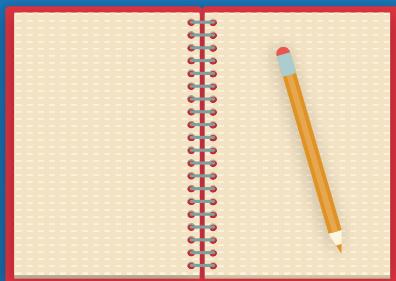
Stranger

This is how programmers give instructions to the computer to perform a specific task.

Let's write a program in a fun way

What you need?

1



Notebook and pencil
to write the program.

2

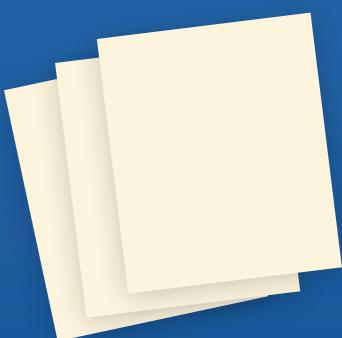


Starting point

End point

Starting point and end point mark.
(it can be done by drawing
a “circle” for start and “x” for end point)

3



Paper for grid layout
(16 sheets of paper)

4



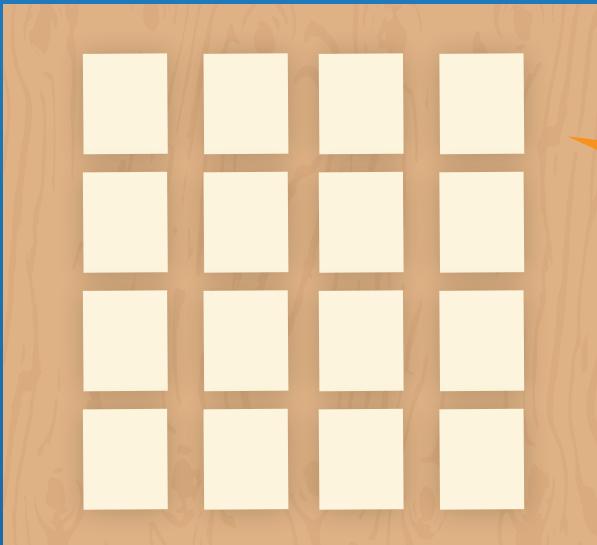
A paper dami robot.

5

Large flat space to layout the grid.

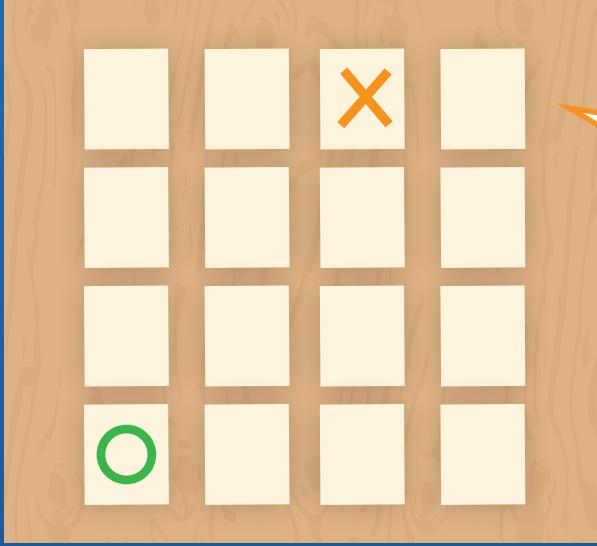
Let's explain the process

1



Set up grid like the image shown here.
You can use 16 piece of paper
in a 4 by 4 lay out.

2

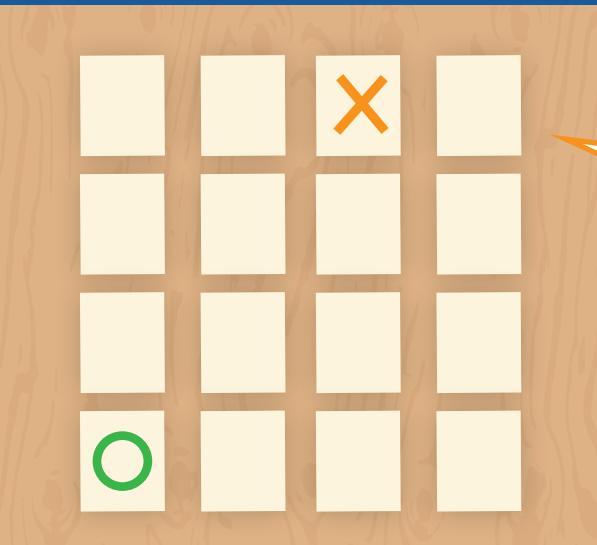


Place the “start” and “goal”
markers on the grid.

start = 

goal = 

3



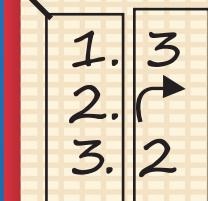
The challenge is to create a program that
guides the robot to reach the goal.



Line

Program

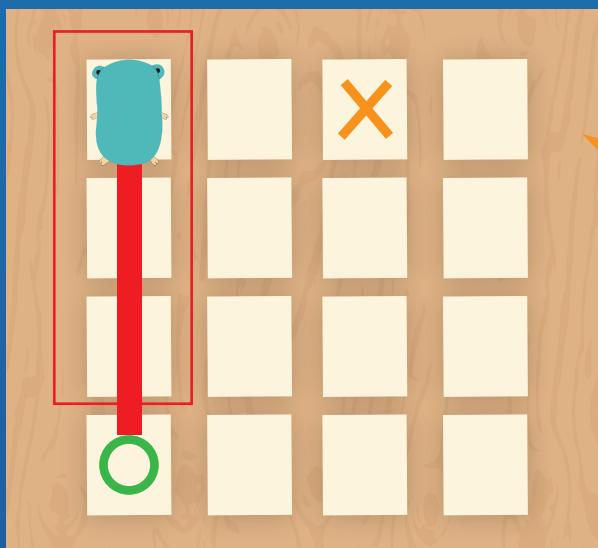
Code



Here is the program to guide the robot to reach the goal.

Numbers = move forward unit
Turn arrow = turn in place

4



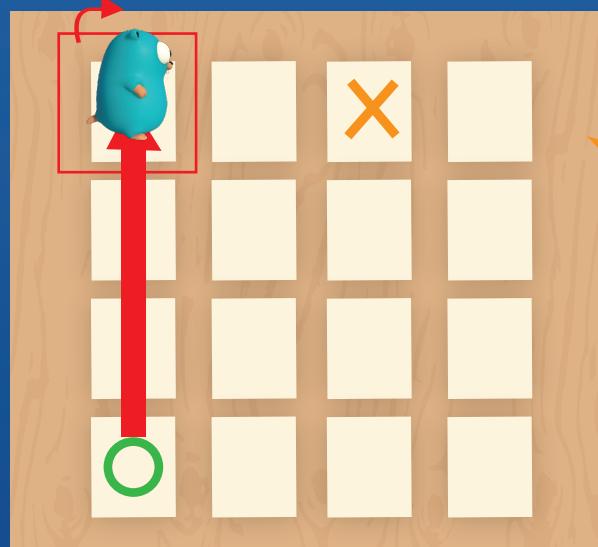
Step-1: 3
So the robot will move forward 3 steps

Program

```

1. 3
2. ↗
3. 2
    
```

5



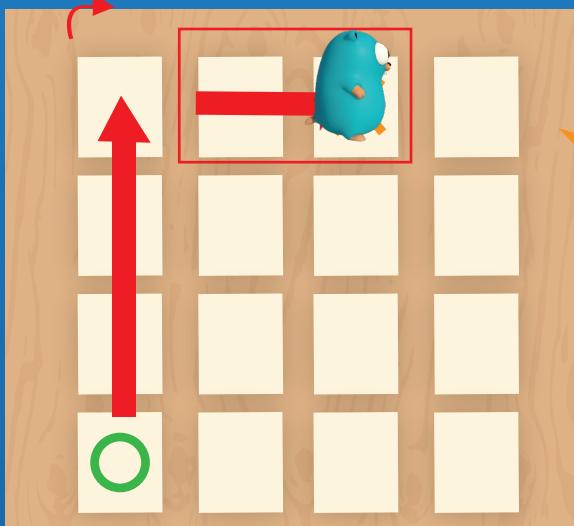
Step-2: ↗(right arrow)
the robot will turn right

Program

```

1. 3
2. ↗
3. 2
    
```

6



Step-3: 2
so robot will go forward
2 steps

Program

1. 3
2. ↗
3. 2

The program is over and the robot successfully reached its goal.

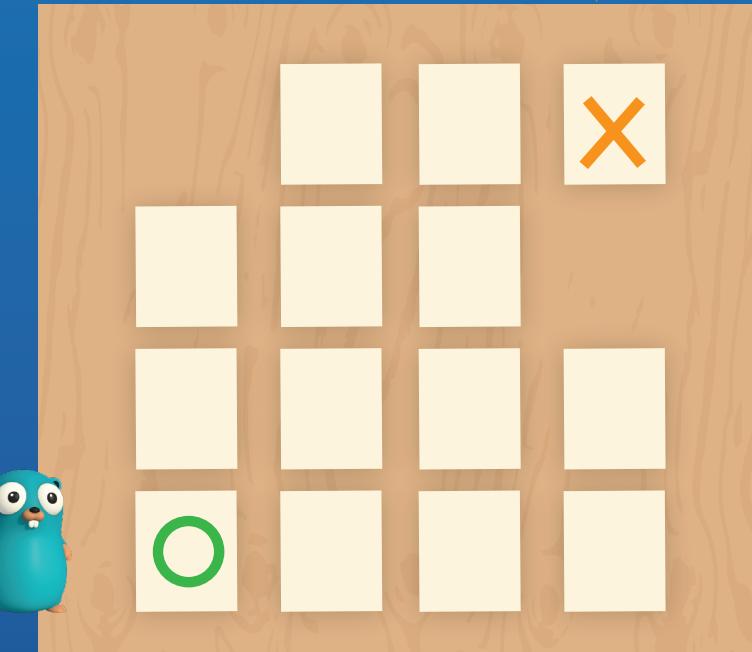


Exercise-1



Now it is your turn. Write a programme

The challenge is to create a program that guides the robot to reach the goal.



Program

- 1.
- 2.
- 3.
- 4.

Write your code here.