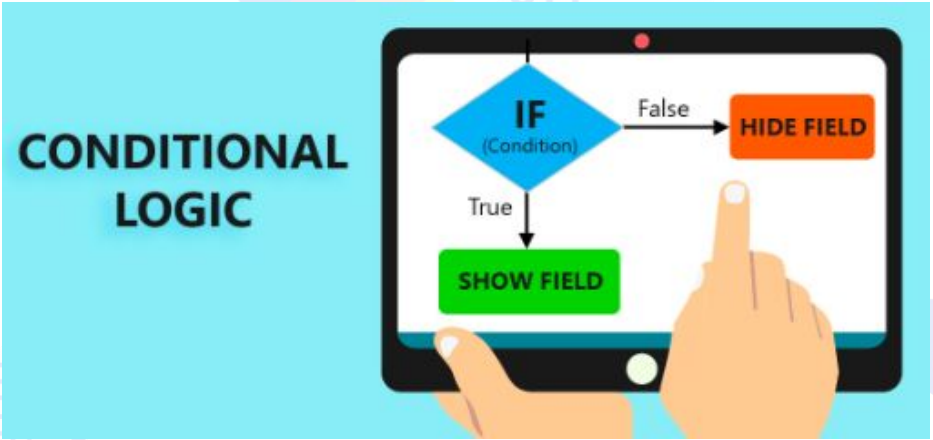
Lesson 14 – Conditionals Statements & Decision Making



What will we Learn

In lesson 2 we had learnt that coding is all about evaluation of conditions.

If I cry, then I get attention.

In this lessons we shall go into its details.

What are Conditions & Conditionals

Let us take an example.
Mr Panda wants to go to the market.

He opens the door to check the weather.

If it is raining, he will take the raincoat.

If not, he will go without it.

Here “Raining” is the Condition.

What are Statements

Statements question the existence of a Condition – Is it raining?

This helps computers take decisions out of that happening.

If the conditional statement is true, then the computer executes the Action specified for that statement.

If it is false, then the computer skips it or ignores it.

Daily life example is a traffic signal at a road crossing.

As we approach a crossing we know
IF the light is green
THEN we will take action to cross.

If it is Red, THEN we take action to stop.

While this is what we automatically do as humans, tomorrow, cars will do it for us using “Code with Conditionals”.

Thus conditionals are conditions (status of light) & statements (If & Then) placed in codes, to enable machines take decisions.

How Does Decision Making Work

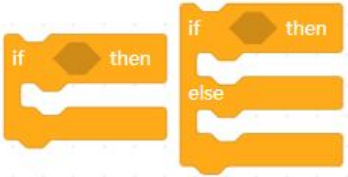
Surprisingly, & without our realisation, Humans are Born as Coders.
A two month old knows IF I cry, THEN I get attention.

This IF & THEN is nothing but the decision making apparatus of coding.

A child uses this to take decisions through co-relation.
A machine used this to take decisions through Code.

Making a Conditional Code

Conditional code lines are made using “If” blocks available in the category of control blocks.

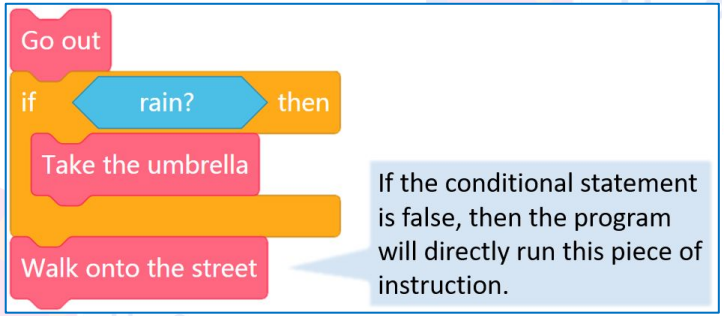


These help computers decide
“If raining, take umbrella.
If not, Then
walk into the street”.

Running of a Conditional Code Line

In this code, the conditional statement is "If Rain?"

" If True?"



"If False?"

If the conditional statement is true, then the program will run this piece of instruction.

Project 32 - Flying Panda 1

It demonstrates If statement. In this, the condition checks for two things:

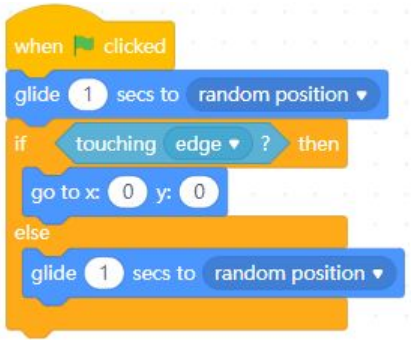
- **If after gliding to random position, is Panda touching the edge?**
- **Is the result of above evaluation true (in this case he is not touching the edge so the result is false).**

Then, only when the answer is true, panda will go to x;0 & y:0. If not, he will stop top at the random position (as in this case).

In short, **Conditional statements,** enables machines to make decisions for taking option based actions.

Project 33 - Flying Panda 2

Its variant demonstrates If – Else statement.



In this, the condition again checks:

- If after gliding to random position, is the Panda touching the edge?
- Is the result of this Evaluation true?

If true, it will Go to x;0 & y:0.
Else (not true), glide further to another random position & then stop.

Process will repeat if the flag is clicked again.

Take Aways…

- Decision making blocks contain statements that a computer using the code evaluates, & then takes a decision as per the outcome of that evaluation.

- We have two of these decision making blocks – If & If-else.

- We shall learn a lot more about the use of these blocks once we have learnt the Operator & Variable Blocks.

End of Lesson 14

Code Karega India Badhega