

# Lesson Plan

- Lesson 1.1: Neural Networks
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- Lesson 2.2: Conditional Programming**
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## Lesson 2.2 Conditional Programming

Warm-up	(10 mins)
Conditions	(10 mins)
Loops	(10 mins)
Wrap up	(05 mins)

### Prerequisites:

In our previous chapter we discussed programming languages. If you haven't already, go back to page 8 of this book.

### Lesson Overview:

In this chapter, we will introduce a programming concept called conditions.

### Lesson objective:

To make students understand programming concept of conditions.

### Requirements:

1. Deck of cards
2. A ball

### Getting started:

1. We'll be playing Bot Movements => Advanced Code Cards => Conditional cards from our rule book which covers conditional rules. The goal is to teach students about conditional programming.
2. Instructors will explain the chapter titled 'Conditional' in Section 2 of the rule book and students will do the exercise.
3. After the rule book is explained, arrange the cards and the board. After the initial setup, explain cards, movements of the bot, choose starting position and get ready to start the game.

### **Conditional statements:**

Conditional statements in computer science are programming structures that perform different actions on instructions provided the boolean condition is TRUE or FALSE.

#### **If-else conditions:**

Consider the following scenario: John has 'x' amount of chocolates. Now if John has more than 10 chocolates, he will share some with Grace. If he doesn't have the required number of chocolates, he will keep them to himself.

This is an example of an if-else conditional loop.

```
If (No. of chocolates with John > 10){  
    // Share it with Grace  
} else {  
    // Don't share with Grace  
}
```

### Board Activity:

Explain students about our basic code cards containing the four If-else loops we have in the game:

1. If **Right** is **SAFE** to move & **Right** is not **BLOCKED**, then we have to move 1 step to the **Right** respectively on the board. Else, move **Left** respectively.
2. If **Left** is **SAFE** to move & **Left** is not **BLOCKED**, then we have to move 1 step to the **Left** respectively on the board. Else, move **Right** respectively.
3. If the count of the number of bots on the **SAFE** circle is 0,2 or 4, i.e, if it's **EVEN**, we need to move our bot to any **two** circles of our choice. If they're not on the desired circles, move to any**one** circle.
4. If the count of the number of the bots on **SAFE** circle is 1,3 or 5, i.e, if it's **ODD**, we need to move our bot to any **two** circles of our choice. If they're not on the desired circles, move to any**one** circle.

### Extended learning:

Gather students outside and ask them to form a circle. Get a sports ball and introduce them to a game as mentioned below.

1. The ball will be kept in the center at the beginning.
2. Ask someone from the circle to take a lead and throw the ball in a random direction.
3. Ask the students to catch the ball and the one who catches the ball gets one point.
4. The student who gathers 5 points will complete the level and leave the circle and form a queue of 4 students.

5. Each student leaving the circle will join the queue or create a new queue if all queues are full. Note that the maximum size of the queue should be 4.
6. If any student is left without a group, ask him not to worry and make his independent group.
7. Lastly, announce that they've successfully qualified for the next round of today's activity, but open a discussion on what happened in the current activity and how conditional probability was applied to their activity. (IF loop)
  - Explain that they were able to join a queue/group if only they had five points.
  - Add that they will be qualified for the next round as long as there are four members in each group. (WHILE loop)
8. Keep the discussion open and let students talk about ideas and solve their doubts.
9. Ask the students to remember their groups for all the remaining chapters of this book.