

# Get Smart: With Java Programming



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```
System.out.println("WELCOME TO THIS COURSE\n");
```

# CONDITIONAL STATEMENTS

(Decision Making)



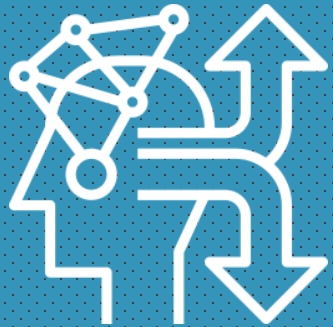
# CONDITIONAL STATEMENT

WHAT TO EXECUTE & WHEN?

Choose a path or a behavior depending on the boolean's value.

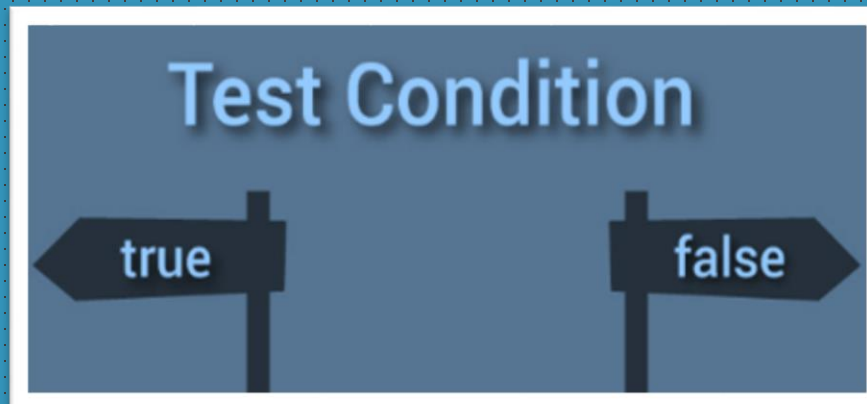
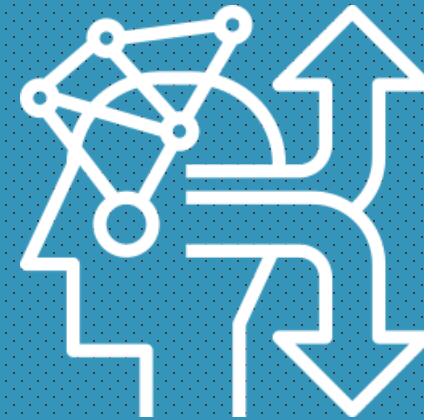


Instead of executing line by line through the whole code, we choose which set of instructions should be executed



# CONDITIONAL STATEMENT

When we need to choose  
which set of instructions (*statements*)  
are obeyed (*executed*)  
according to a condition  
that is either true or false  
(using equality and relational operators)



## Available Transactions

Select your transaction.

**Withdrawal**

**Deposit**

**Balance Inquiry**

**Transfers & Payments**

**Set Preferences**

**Cancel**

**Additional Options >**





# Buffet



Price for ages 15 and more = 18JD's  
Children's Price: ages 6-14 = 10JD's  
Kids Price: ages 5 and under = free 0JD's

# Electricity Bill

Calculate the total price

Units consumed

Price (Per Unit)

- *From 0-500 Units = 0.2JD'S*
- *From 500-1000 Units = 0.5JD'S*
- *More than 1000 Units = 0.8JD'S*

Additional Fees (5JD's)

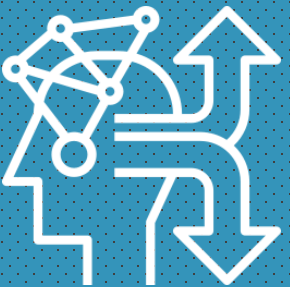
Tax (20% of the total bill including the additional fees)

# CONDITIONAL STATEMENT

```
1  if ( CONDITION )  
2  { // 'if' BLOCK STARTS HERE  
3      STATEMENT1;  
4      STATEMENT2;  
5      ...  
6      ...  
7  } // 'if' BLOCK ENDS HERE
```



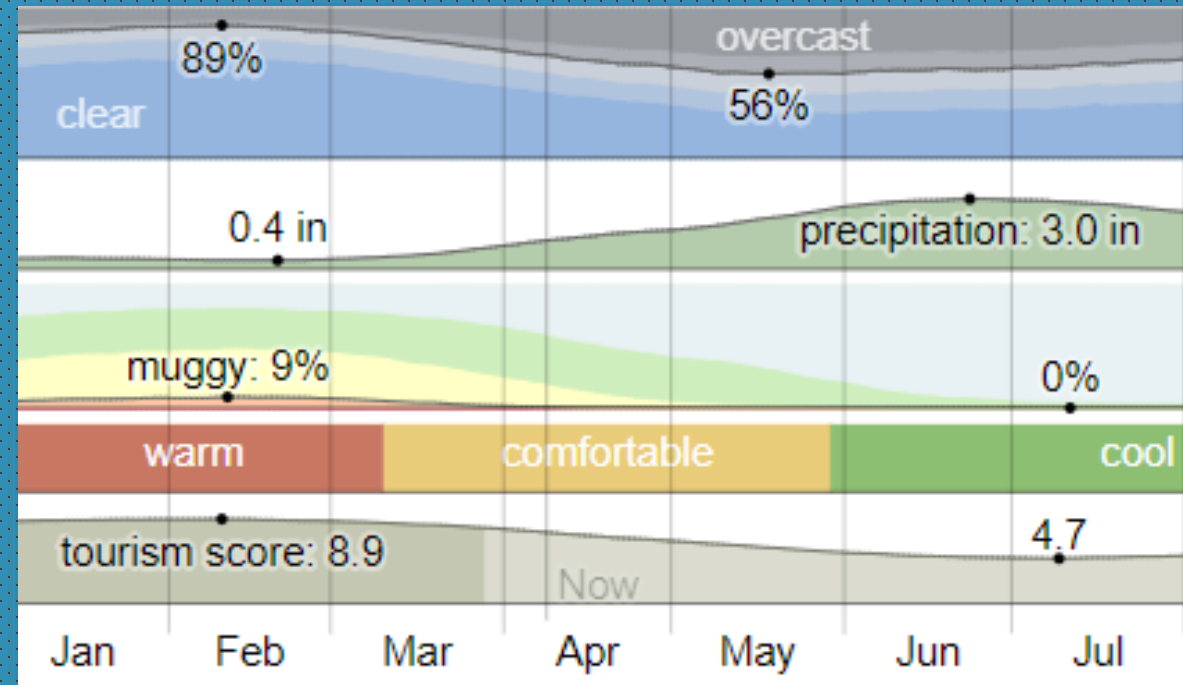
STATEMENT1 & STATEMENT2 are only executed if 'CONDITION' is true, but if 'CONDITION' is false, any code from line '2' to line '7' is ignored completely





E.g. A program for a automated air condition that checks if the weather is hot or cold.

```
double outTemp, inTemp;  
boolean isCold = outTemp < 12;  
  
if(isCold) {  
    System.out.println("It's cold");  
    inTemp = 18+(33/outTemp);  
}
```



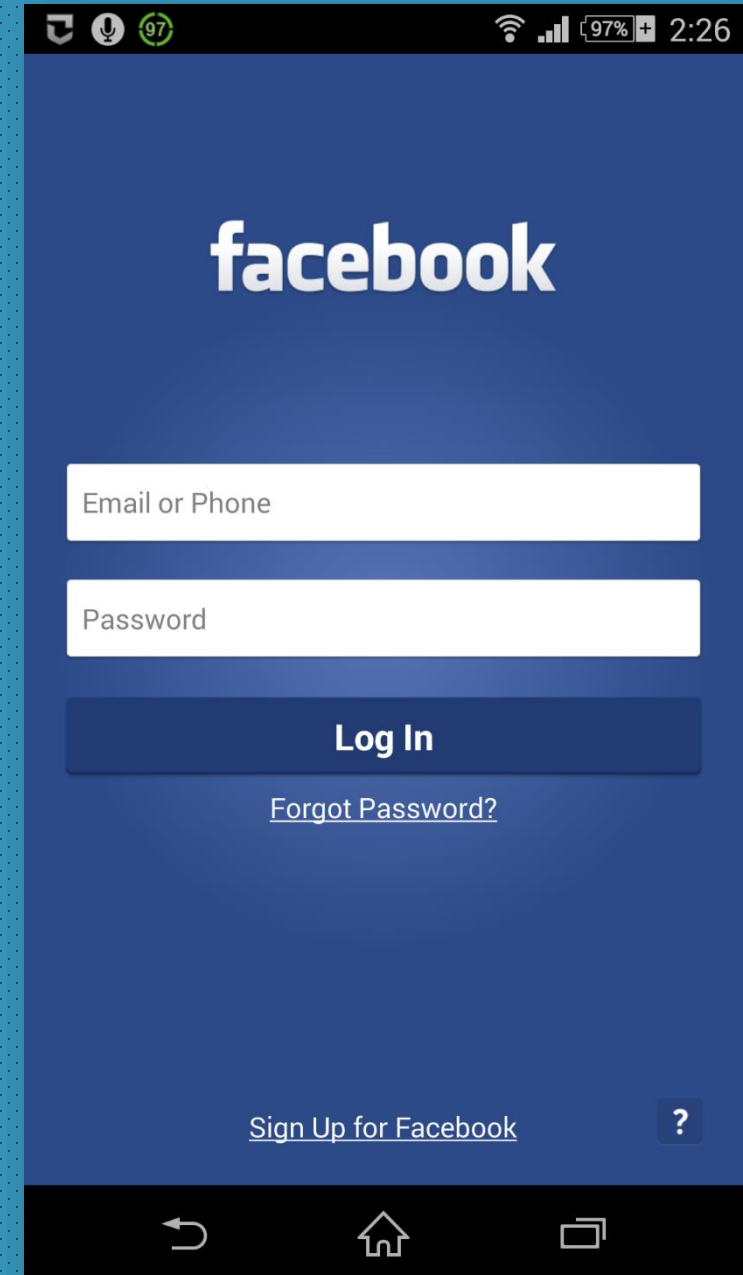
<https://weatherspark.com/>

# A program that checks if the user has entered the correct password

```
Scanner input = new Scanner(System.in);
String correctPassword = "yaman123";
System.out.println("ENTER YOUR USERNAME");
String username = input.nextLine();

System.out.println("ENTER YOUR PASSWORD");
String enterPassword = input.nextLine();

boolean isValid = (enterPassword.equals(correctPassword));
if (!isValid) {
    System.out.println("YOUR PASSWORD IS INCORRECT" );
}
```



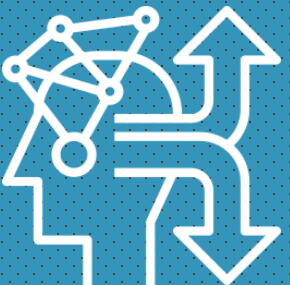
# IF ... ELSE

In the single 'if' statement if the 'condition' is true the following code block is executed, if not it just skips the whole block ...

Now if want to make the program execute a different code if the 'condition' is false we use the 'if – else' statement

```
1  if(condition2) { statement1; }  
2  else { statement1; }
```

Statement1 is only executed if 'condition2' is true, but if 'condition2' is false, then the 'else' part is executed which is 'statment1' on line 2 ...

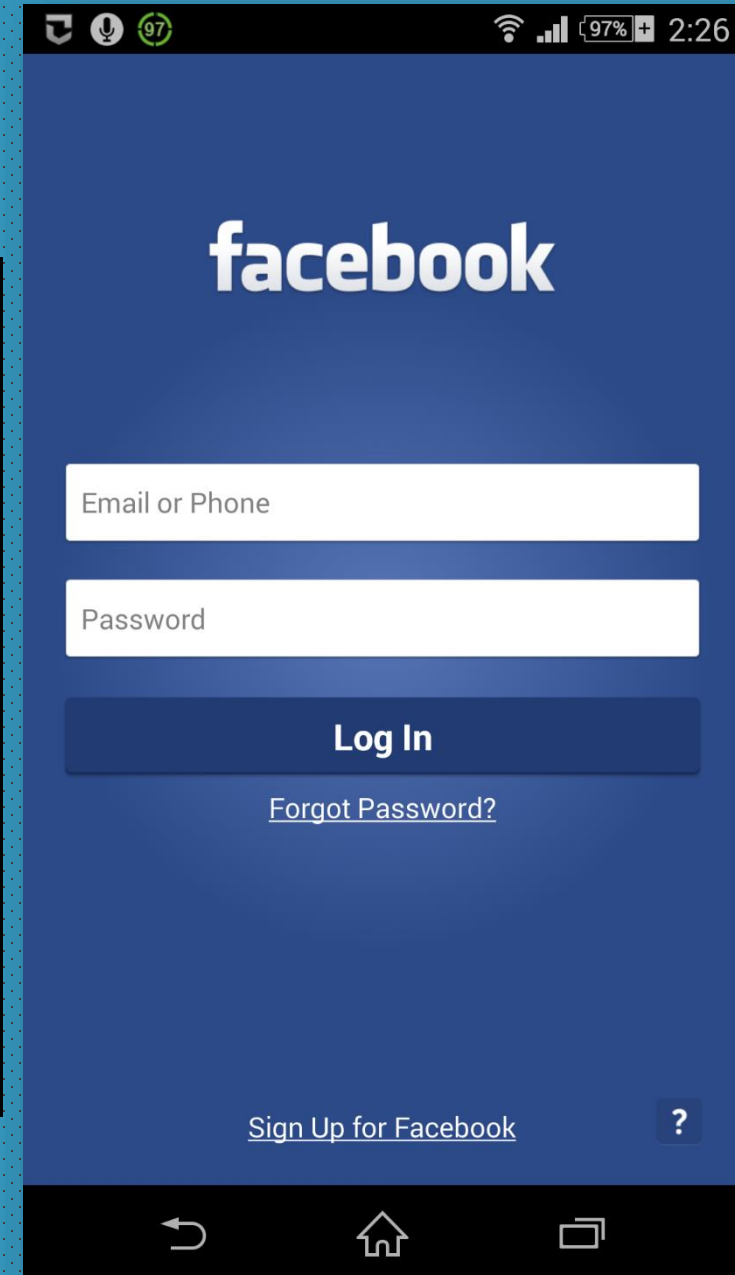


# A program that checks if the user has entered the correct password

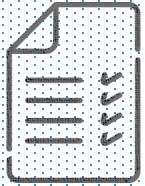
```
Scanner input = new Scanner(System.in);
String correctPassword = "yaman123";
System.out.println("ENTER YOUR USERNAME");
String username = input.nextLine();

System.out.println("ENTER YOUR PASSWORD");
String enterPassword = input.nextLine();

boolean isValid = (enterPassword.equals(correctPassword));
if (isValid) {
    System.out.println("Success Login" );
}
else { System.out.println("Wrong Password"); }
```



# IF ... ELSE



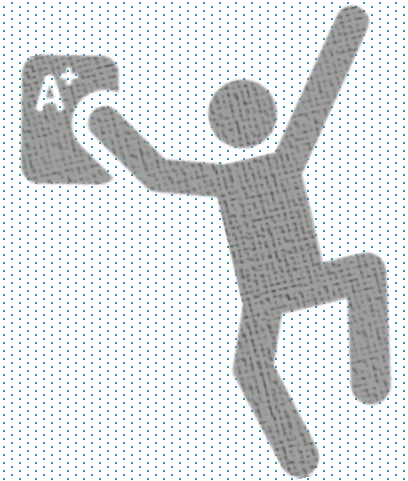
Example: A program that displays “Passed” if the student passed the exam , and displays “Failed” if the student failed

**IF (GRADE  $\geq$  50)**

**(“PASS”);**

**ELSE**

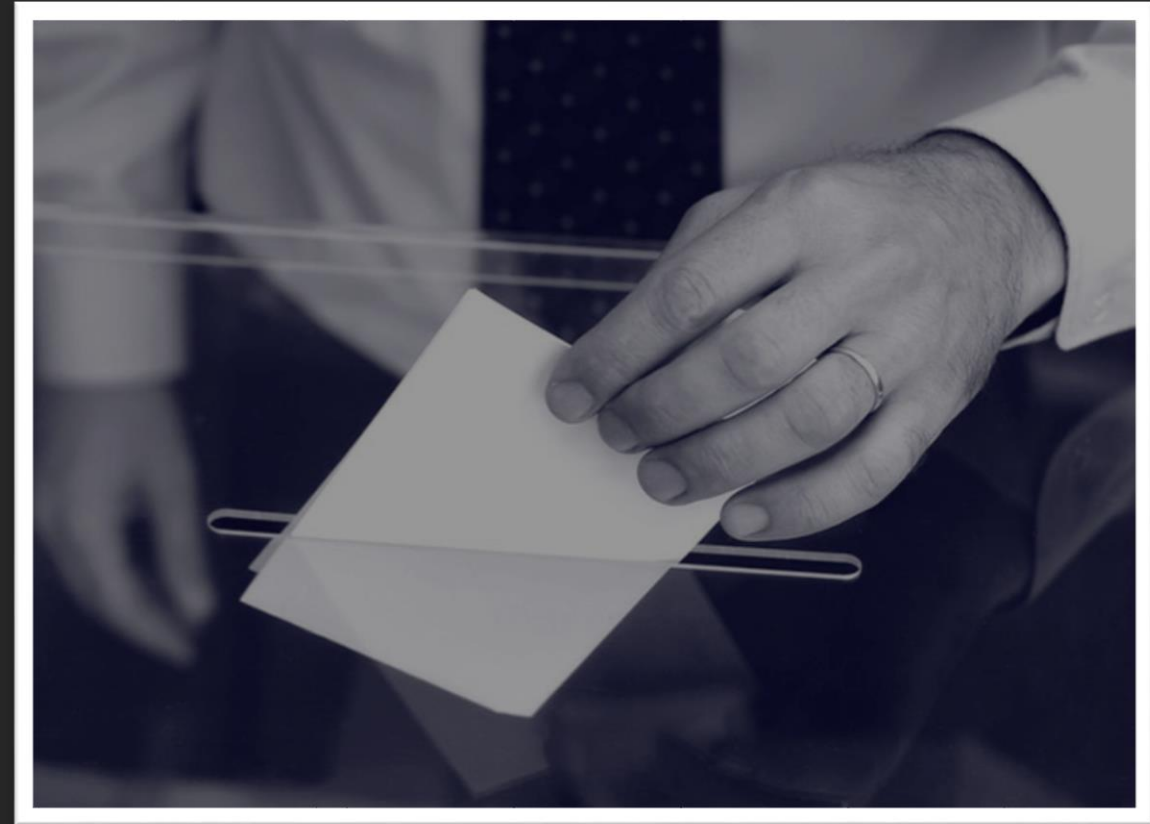
**(“FAILED”);**





A program that checks if the candidate eligible for elections

1. INPUT AGE
2. `boolean isQualified = age >= 30;`
3. if (isQualified) then take his info
4. Else output a rejection message



```
graph LR; A["if(num<0)  
('Num is negative');"] <--> DashedLine[ ]; B["if(water>capacity)  
('Tank is not enough');"] --> DashedLine; C["if(temp>35)  
('Today is Hot');  
('Drink enough water');"] <--> DashedLine; E["if(waterLevel == capacity)  
('Tank is full');"] --> DashedLine; F["if(grade >= 50)  
('You Passed The Exam');"] --> DashedLine;
```

if(water>capacity)  
("Tank is not enough");

if(num<0)  
("Num is negative");

if(waterLevel == capacity)  
("Tank is full");

if(temp>35)  
("Today is Hot");  
("Drink enough water");

if(grade >= 50)  
("You Passed The Exam");

# Conditions to travel to Mecca Al-Mukarramah

Only **women** 45 years old or older are allowed to go without a mahram if they **travel** with an organised group or family and submit a notarised No Objection Certificate from 2018/01/17 her mahram.

For Male's:

Age should be +18

For Female's:

Age should be +45 (traveling within a group)

If age is less than 45 a female should have a Mahram





## A Program To Monitor The Tire's Status

```
int pressure = input.nextInt();
boolean isTiresOk =
    pressure >= 34
    && pressure <= 37;

if(!isTiresOk)
    System.Out.println("CHECK TIRES");
```



# ELSE IF STATEMENT

```
if(grade>=80 && grade<=100) System.out.println("A");  
else if(grade>=65) System.out.println("B");  
else if(grade>=55) System.out.println("C");  
else if(grade>=50) System.out.println("D");  
else if(grade>=0 && grade<=49) System.out.println("F");
```

→ For example, if the input of 'grade' was 77, then the output will be: 'B'

If the 'grade' was 43, the output will be: 'F'

## When To Use The ELSE IF ?

- Used to test various conditions (cases)
- Only one case will be executed
- Similar to 'switch' statements

Letter grade	Percentage
A	80 – 100
B	65 – 79
C	55 – 64
D	50 – 54
F	0 – 49



```
    if(num<0)
    (“Num is negative”);
    else if(num == 0)
    (“Num is ZERO ”);
    else
    (“Num is Postive”);
```



Enter Coins:

CHOOSE:

10: KitKat (0.5)

15: Oreo (0.25)

20: Ras Al-Abed (0.1)

25: Laban (0.5)



Enter Coins: 0.1

Enter:

10: KitKat (0.5)

15: Oreo (0.25)

20: Ras Al-Abed (0.1)

25: Laban (0.5)

If balance < choicePrice

“Not Enough Money”

Change = balance-choicePrice

## Health Insurance:

Married: \$80

- Children 1-3 => \$20 Per Child
- Children 4+ => \$40 For The First 2, Then \$10 Per Child

Single: \$50

5 children ->  $40 + (\text{children}-2)*10$

“YOU HAVE THE FOLLOWING TWO OPTIONS 3-MONTHS OR 12-MONTHS “

--- 3 Months: 60JDs // ---12 Months: 160JDs

"WOULD YOU LIKE A PT (1-YES) - (2-NO)"

IF YES "HOW MANY SESSIONS PER WEEK? “

--- Each Session: 5JDs

$\text{sessions} * 4(\text{weeks}) * (3 \text{ or } 12)$



# BMI Formula

$$\text{BMI} = \text{weight (kg)} / [\text{height (m)}]^2$$



Body Mass Index (BMI) is a measure of health on weight. It can be calculated by taking your weight in kilograms and dividing by the square of your height in meters. The interpretation of BMI for people 16 years or older is as follows:

BMI	Interpretation
Below 18.5	Underweight
18.5-24.9	Normal
25.0-29.9	Overweight
Above 30.0	Obese

# BMI Formula



$$\text{BMI} = \text{weight (kg)} / [\text{height (m)}]^2$$

BMI	Interpretation
Below 18.5	Underweight
18.5-24.9	Normal
25.0-29.9	Overweight
Above 30.0	Obese

$$1 \text{ lb} = 0.45359237 \text{ kg}$$

$$1 \text{ kg} = 2.20462226 \text{ lb}$$

$$1 \text{ m} = 39.3700787402 \text{ in}$$

```
Scanner input = new Scanner(System.in);

// Prompt the user to enter weight in pounds
System.out.print("Enter weight in pounds: ");
double weight = input.nextDouble();

// Prompt the user to enter height in inches
System.out.print("Enter height in inches: ");
double height = input.nextDouble();

final double KILOGRAMS_PER_POUND = 0.45359237; // Constant
final double METERS_PER_INCH = 0.0254; // Constant

// Compute BMI
double weightInKilograms = weight * KILOGRAMS_PER_POUND;
double heightInMeters = height * METERS_PER_INCH;
double bmi = weightInKilograms /
    (heightInMeters * heightInMeters);

// Display result
System.out.println("BMI is " + bmi);
if (bmi < 18.5)
    System.out.println("Underweight");
else if (bmi < 25)
    System.out.println("Normal");
else if (bmi < 30)
    System.out.println("Overweight");
else
    System.out.println("Obese");
}
```

Single if( )	If the condition is true the block of code will be executed, if not it will just jump to the next statement after the whole block.	Used when there is a single condition to be checked (e.g. Check if password==true)
if( ) { ... } else { ... }	statements are executed when condition is true. If condition is false, then else part statements are executed.	Used when there is a condition & its opposite (e.g. odd/even) (Pass/fail)
if ( ) { ... } else if ( ) { ... } else { ... }	If the first condition is true the first block of code will be executed, if not it will jump to the next 'else if' if the condition is true the block of code will be executed, if not it will jump to the else part.	Used to test multiple similar conditions that only one of them can be true at once (e.g. Relations between numbers) (Rank of GPA) (Options)

**The if statement is called a single-selection statement because it selects or ignores a single action.**

**The if...else statement is called a double-selection statement because it selects between two different actions**

# Selection keywords

Used to execute some code (statements) only if a specific condition is met (true).

The question will contain a condition or “if” keyword, or “between x and y” or “Include/Exclude”

e.g. #of emp in their twenties , #of red cars in the park, if he is above 18, if the number is larger than, The program should then print the number of vowels

The number of employees in the company whose salaries are between 1000.00 JD and 2000.00 JD . Exclude Odd numbers

## if

Used when a code should be executed only when a specific condition is met.

Executes the code (statements) only if a condition is true, and skips the code if it is false.

```
if ( x == 3 ) { //do this; }
```

## else

Used when a condition has an opposite or another situation.

Executes the code (statements) if only a condition is false.

```
if ( x == 3 )  
{ //do this if true; }  
else  
{ //do this if false; }
```

## else if

Used when there is further conditions and different code (statements) for each condition.

```
if ( opt == 90 )  
{ //do this if true; }  
else if (opt ==80)  
{ //do this if true; }  
else if (opt ==70)  
{ //do this if true; }  
else  
{ //do this if false; }
```



When the input is 3 & 7



```
3 is not equal to 7  
3 is less than 7  
3 is less than or equal to 7
```

When the input is 22 & 12



```
22 is not equal to 12  
22 is greater than 12  
22 is greater than or equal to 12
```

When the input is 7 & 7

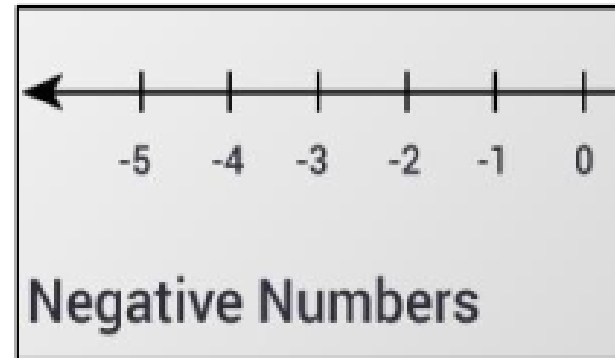


```
7 is equal to 7  
7 is less than or equal to 7  
7 is greater than or equal to 7
```

### ❖ Absolute value

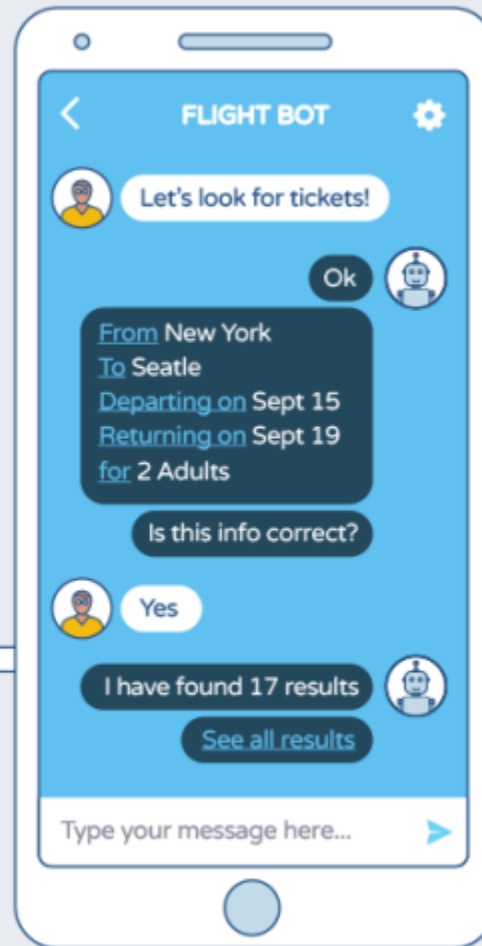
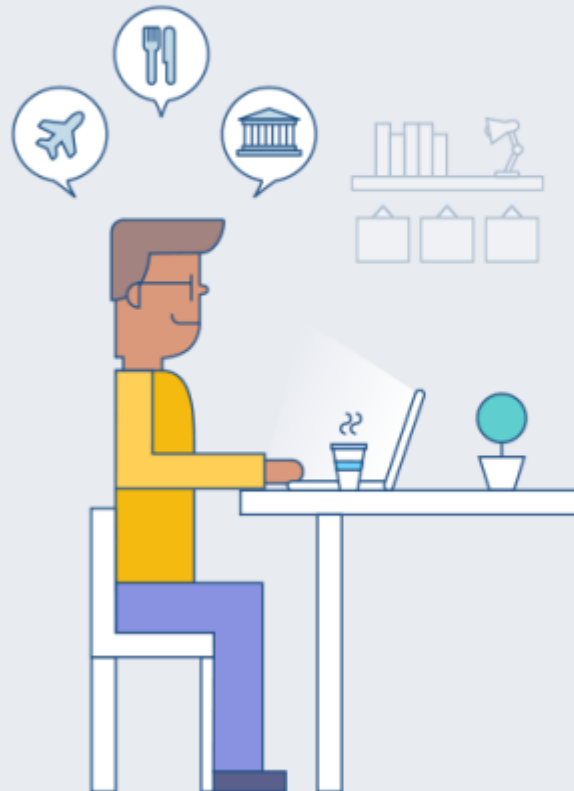
To calculate the absolute value of a number first we check if the number is positive it remains the same, if the number is negative then the number should be multiplied by -1 to make it positive.

```
if ( number < 0 ) //NEGATIVE  
{ number = number * -1;}
```

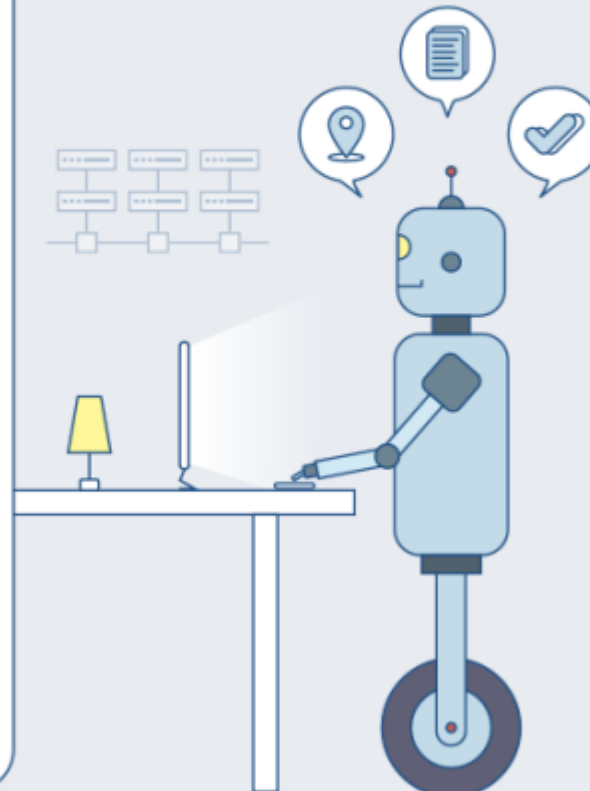


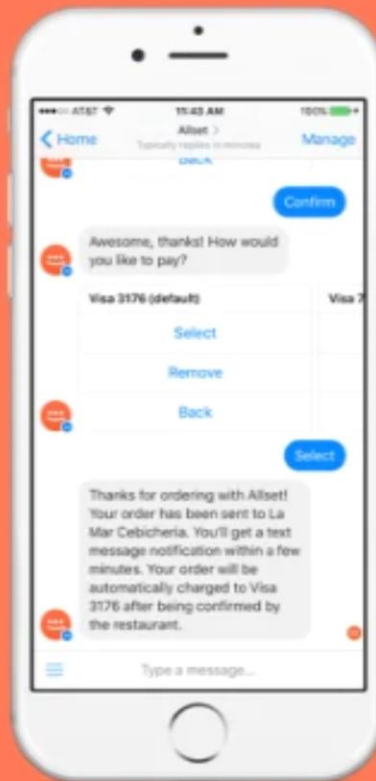
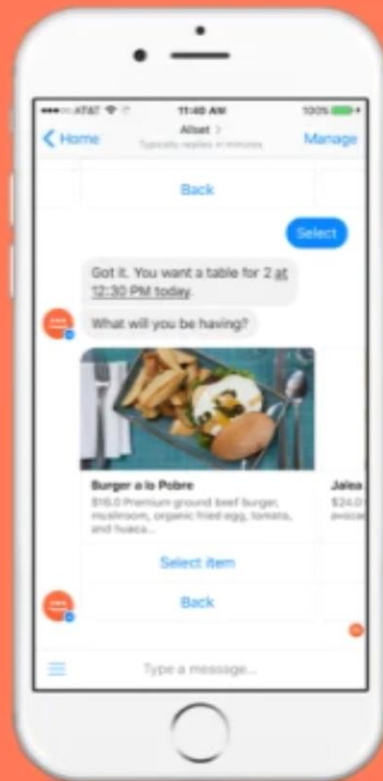
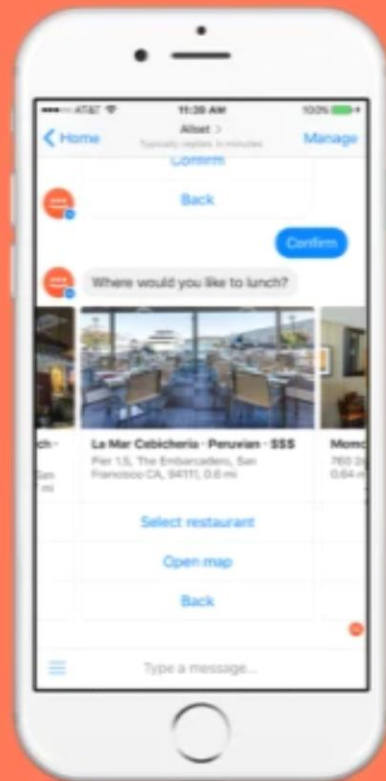
# Build a simple chatbot

What kind of food do you sell here?  
What is your website?  
What is your location  
Do you have any jobs?



Indian, Chinese, Arabic  
cyberdeal.vision  
Amamn, Jordan  
No





## Restaurant Ordering Bot

\$495

A bot on which customers can browse menu, order and send feedback

- ☐ 7 Days Delivery
- ☐ API Integration
- ☐ 40 Conversation Steps
- ☐ Conversation Script
- ☐ Flow Design
- ☐ 2 Messaging Platforms

**Continue (\$495)**

[Compare Packages](#)

[Contact Seller](#)



### Enhance Existing Chatbot

\$995

I will do Enhance Features of existing Chatbot or can Fix any kind of issue.

🕒 29 Days Delivery 🔄 1 Revision

- ✓ API Integration
- ✓ Conversation Script
- ✓ Flow Design
- ✓ Action Plan

[Continue \(\\$995\)](#)

[Compare Packages](#)

[Contact Seller](#)

# Build a simple chatbot

Hello Yaman, How can we help you today?

- What kind of food do you sell here?
- What is your website?
- What is your location
- Do you have any jobs?

\* Indian food

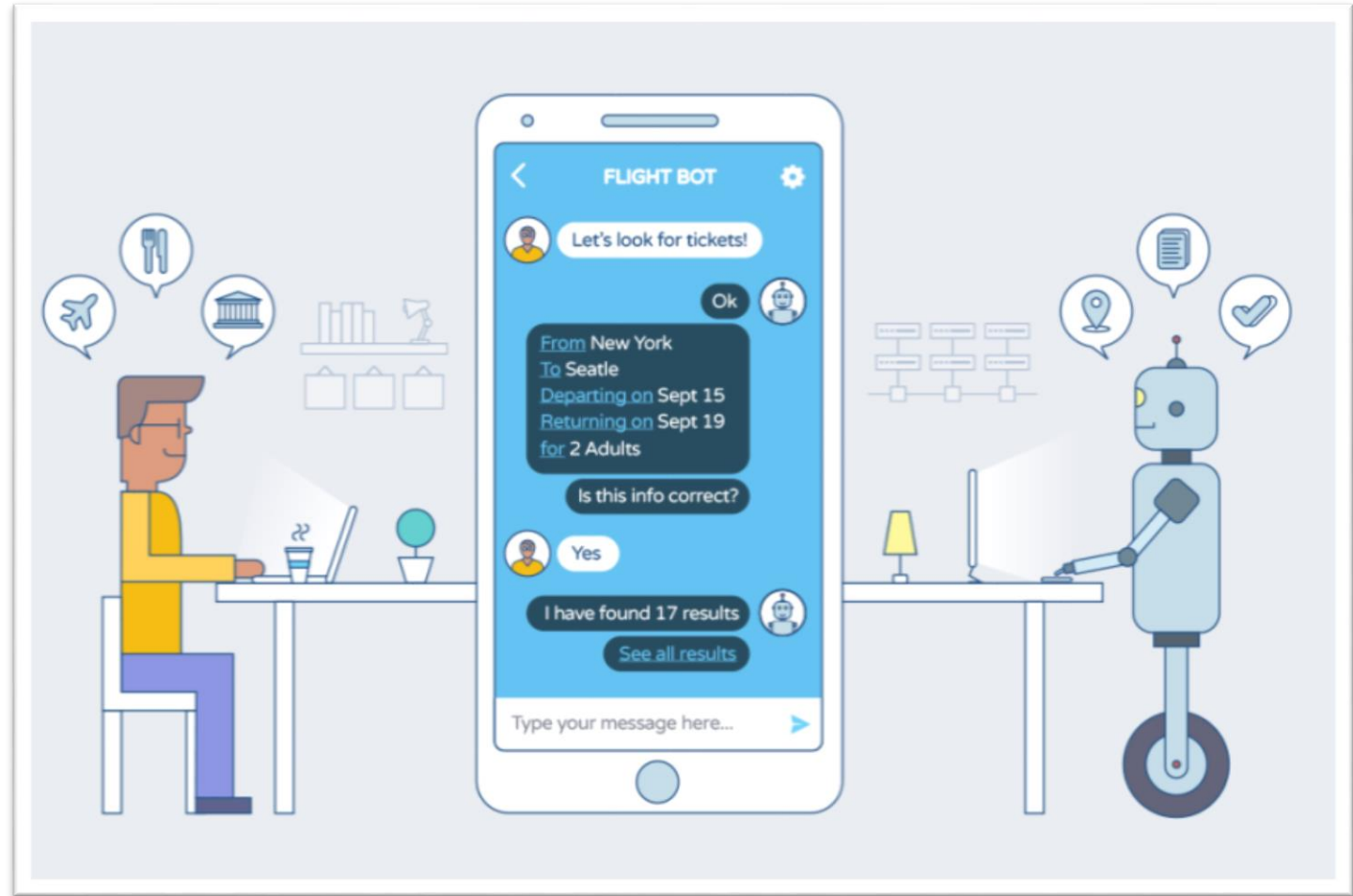
- Chicken Tikka (4 JD's)
- Butter Chicken (4.5 JD's)
- Biryani (5 JD's)

\* Arabic Food

- Mansaf
- Kabseh
- Mlokhya

Cyberdeal.vision

Amman, Jordan











**Challenge:**

Program a simple chat-bot for any sector you like  
(health, restaurants, sports, business, TV, travel)

Basically the user can ask for help, and the program will answer his questions

# Calculate Student Fees

-  Student Information
-  Current Schedule
-  Exams Schedule
-  Semesters Courses
-  Study Plan
-  Registration
  - Registration Dates
  - Drop and Add
  - Calculate Fees
  - Next Semester Exams
  - Adding Waiting List
  - Registered Courses

Student's name YAMAN ALASHQAR

Specialization Computer Science

No. of hours registered

12

Calculate

Description	Debit
You have current balance	00
Registration (12 ) credit hours	360
Semester fees ( First ) Semester	100
Required Amount From You	460

# Calculate Student Fees

Student Information

Current Schedule

Exams Schedule

Semesters Courses

Study Plan

Registration

Registration Dates

Drop and Add

Calculate Fees

Next Semester Exams

Adding Waiting List

Registered Courses

- The student enters his name, specialization, and the number of hours he wants to register

- The student can register a maximum of 18 Hours

- The “price-per-hour” depends on the specialization:

- \* Computer graphics: \$20
- \* Computer Science: \$30
- Computer engineering: \$40

- The semester fees as \$100

Description	Debit
Registration (0) credit hours	00
Semester fees ( First ) Semester	360
Required Amount From You	100
	460

Based on a user's order, work out their final bill.

Small Pizza: \$15

Medium Pizza: \$20

Large Pizza: \$25

Pepperoni for Small Pizza: +\$2

Pepperoni for Medium or Large Pizza: +\$3

Extra cheese for any size pizza: + \$1

Example Input

size = "L"

add\_pepperoni = "Yes"

extra\_cheese = "No"



Example Output

Your final bill is: \$28.