

Get Smart: With Java Programming



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

JOptionPane

Repetition Statements

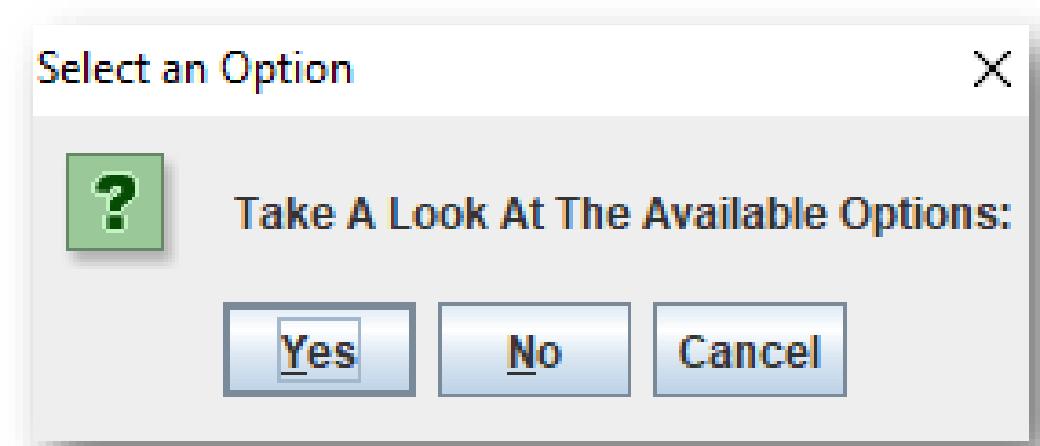
While Loop
For Loop



Input

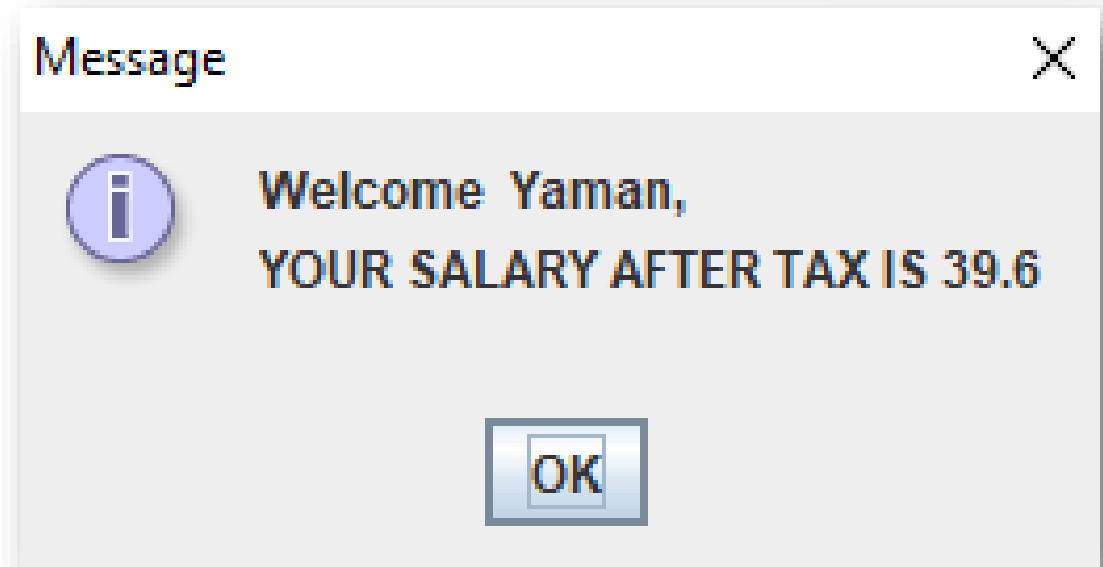


input dialog box



confirm dialog box

message dialog box



The JOptionPane class is used to provide standard dialog boxes such as

- message dialog box,
- confirm dialog box,
- input dialog box.

These dialog boxes are used to display information or get input from the user.

```
//import javax.swing.JOptionPane;

String name = JOptionPane.showInputDialog("Whats Your Name?");
int salary = Integer.parseInt( JOptionPane.showInputDialog("Salary?"));

JOptionPane.showMessageDialog(null, "Welcome " + name + ", \nYOUR SALARY AFTER TAX IS " + (salary*1.2) );
int choice = JOptionPane.showConfirmDialog(null, "Take A Look At The Available Options:" ); // 0 IS YES , 1 IS NO

if(choice==0) {
    JOptionPane.showMessageDialog(null, "MENU ITEM [1]\nMENU ITEM [2]\nMENU ITEM [3]\n" );
}
```

SEPERATING DIGITS

LAST DIGIT FROM THE RIGHT = `num % 10;`
CHOPPING OFF THE LAST DIGIT = `num / 10;`

```
int num = 5482;
```

5482

```
int last_digit = num%10;
```

2

```
num = num/10;
```

548~~2~~

Note:

```
d1 = (num/1000);      //5  
d2 = (num/100) % 10;  //4  
d3 = (num/10) % 10;   //8  
d4 = (num) % 10;      //2
```

Because 'num' is an int,
the decimal is ignored

❖ Separating Digits

Suppose we have the following number '5732' held in the variable 'num' and we want to separate each digit or even reverse the whole number...

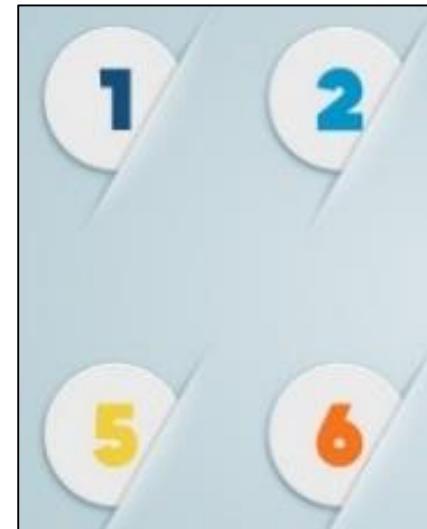
A simple technique is used,

LAST DIGIT FROM THE RIGHT = **num % 10;**

CHOPPING OFF THE LAST DIGIT = **num / 10;**

$$5732 \% 10 = 2$$

$$5732 / 10 = 573$$



Use this trick ~~in a loop~~ → **while(num>0)....**

To find out:

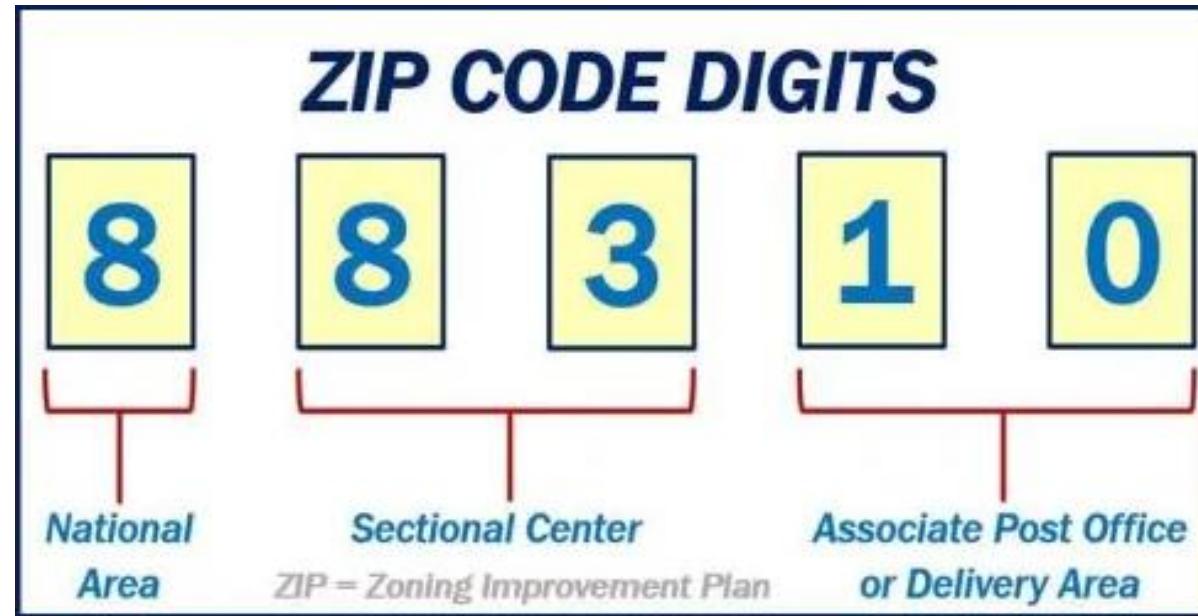
- The number of digits or occurrence of a specific digit
- Sum of digits or The Product of digits
- Largest digit or the Minimum digit
- Reverse a number

Variables Scope

The block of code where a variable can be used (between curly brackets)

```
public static void main(String[] args) {  
    boolean isLightGreen = true;  
    if(isLightGreen) {  
        int setSpeed = 40;  
        System.out.println("DRIVE");  
        System.out.println("setSpeed = " + setSpeed);  
    }  
    System.out.println("setSpeed = " + setSpeed ); }
```

```
public static void main(String[] args) {  
    int setSpeed=0;  
    boolean isLightGreen = true;  
    if(isLightGreen) {  
        setSpeed = 40;  
        System.out.println("DRIVE");  
        System.out.println("setSpeed = " + setSpeed);  
    }  
    System.out.println("setSpeed = " + setSpeed); }
```



The first digit represents the “national area”, the next two digits represent the “sectional center” and the last two digits represent the “post office”

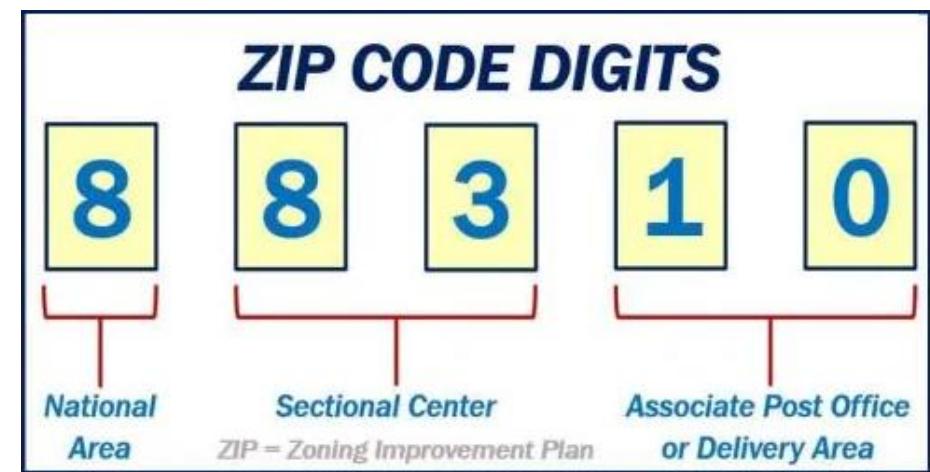
write a program that reads the ZIP code from the user, then stores each group of digits in a separate variable, then check the “national area” “3” display “Amman” , “4” display “Irbid”.

```

int zip_code;
int code;
int national_area;
int sectional_center;
int post_office;
Scanner input = new Scanner(System.in);
System.out.println("KINDLY, ENTER THE ZIP CODE, JUST FIVE DIGIT");
zip_code = input.nextInt();
System.out.println("ZIP CODE : " + zip_code);
code = input.nextInt();
national_area = (code / 10000);
System.out.println("NATIONAL AREA = " + national_area);
sectional_center = (code /100)%100;
System.out.println("SECTIONAL CENTER = " + sectional_center);
post_office = (code % 100);
System.out.println("POST OFFICE = " +post_office);

if (national_area == 3)
{
    System.out.println("AMMAN");
}
else if (national_area == 4)
{

```

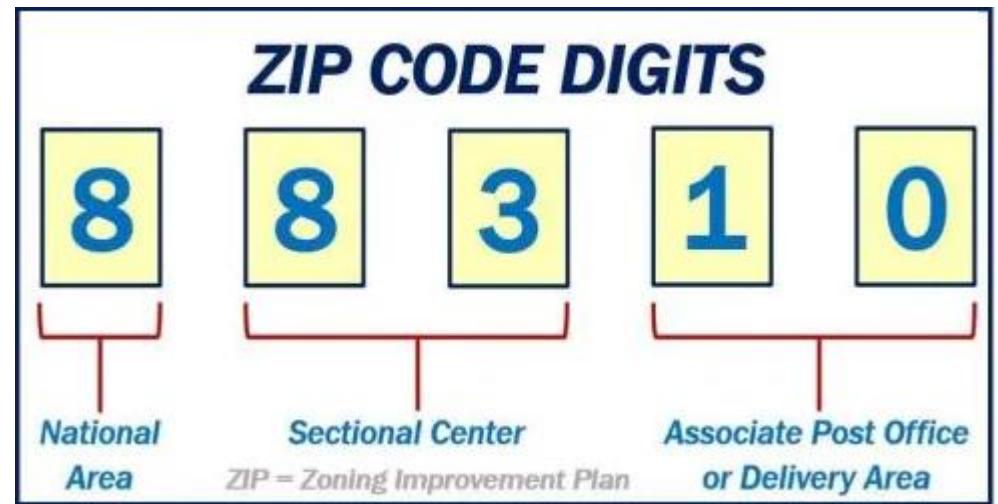


The first digit represents the “national area”, the next two digits represent the “sectional center” and the last two digits represent the “post office”

write a program that reads the ZIP code from the user, then stores each group of digits in a separate variable, then check the “national area” “3” display “Amman” , “4” display “Irbid” .

The first digit represents the “national area”, the next two digits represent the “sectional center” and the last two digits represent the “post office”

write a program that reads the ZIP code from the user, then stores each group of digits in a separate variable, then check the “national area” “3” display “Amman” , “4” display “Irbid”.



```
String zipCode = "88310";
String area = zipCode.substring(0, 1);
String sectionalCenter = zipCode.substring(1, 3);
String postOffice = zipCode.substring(3);
```

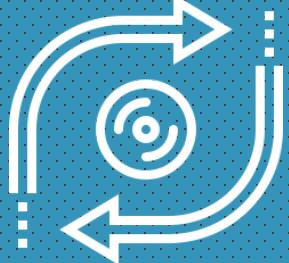
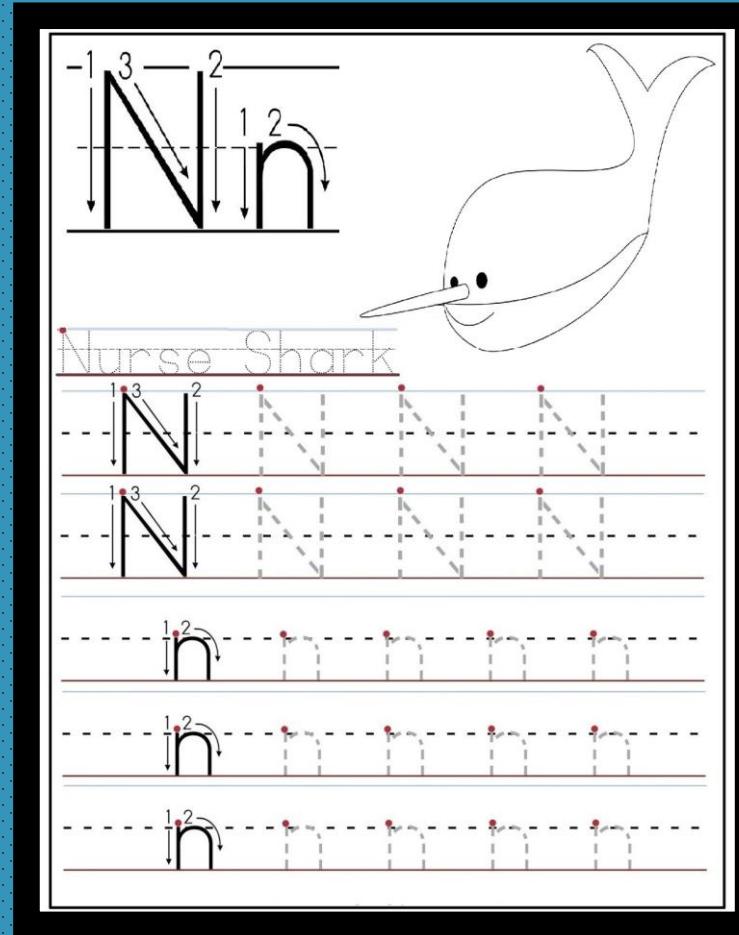
```
int a = Integer.valueOf(sectionalCenter);
int b = Integer.parseInt(sectionalCenter);
```

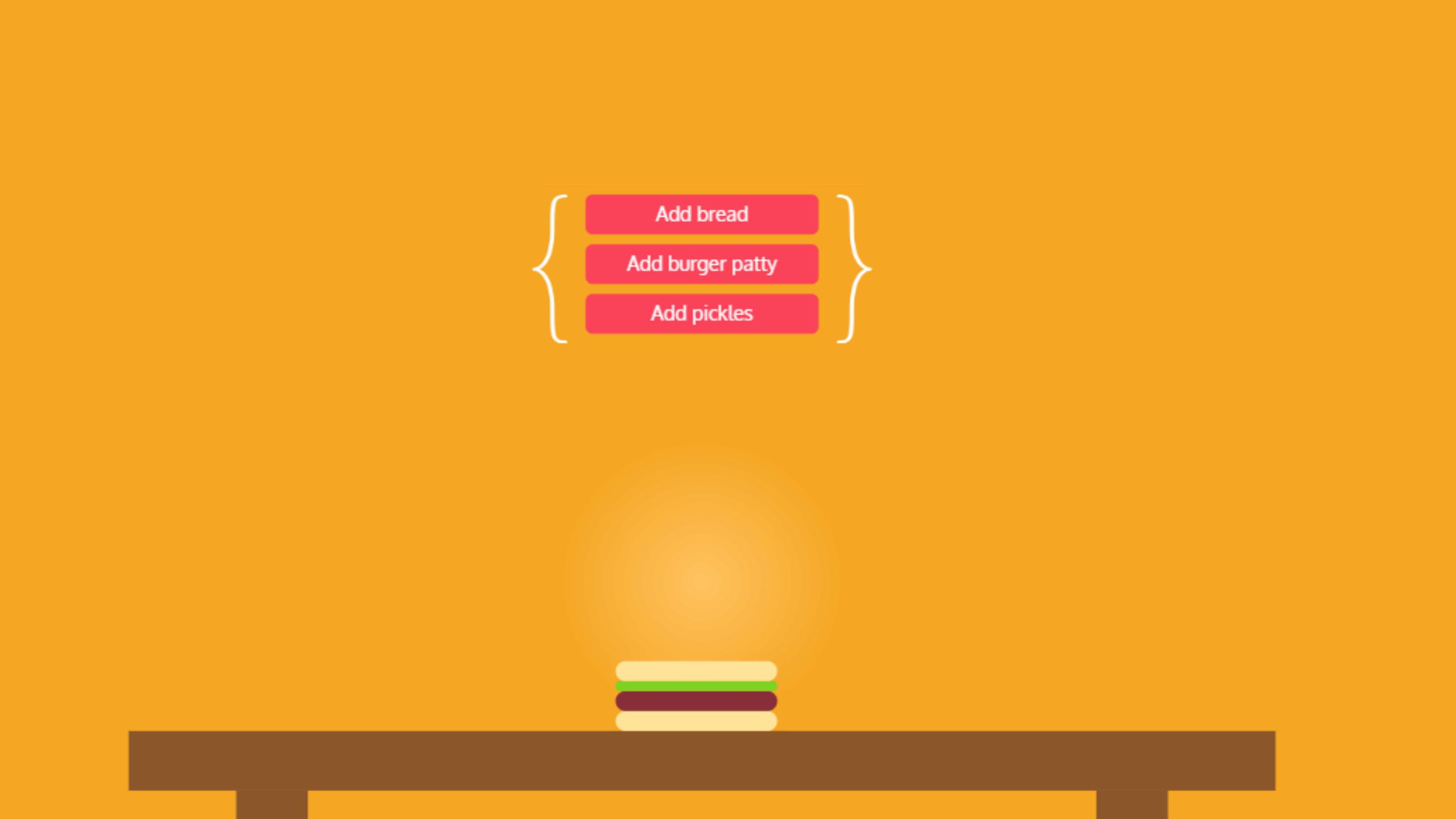
```
int zipCode = 88310;
int area = zipCode/10000;
int sectionalCenter = zipCode/100 %100;
int postOffice = zipCode % 100;
```

LOOPS



specify that an action is to be repeated while some condition remains true

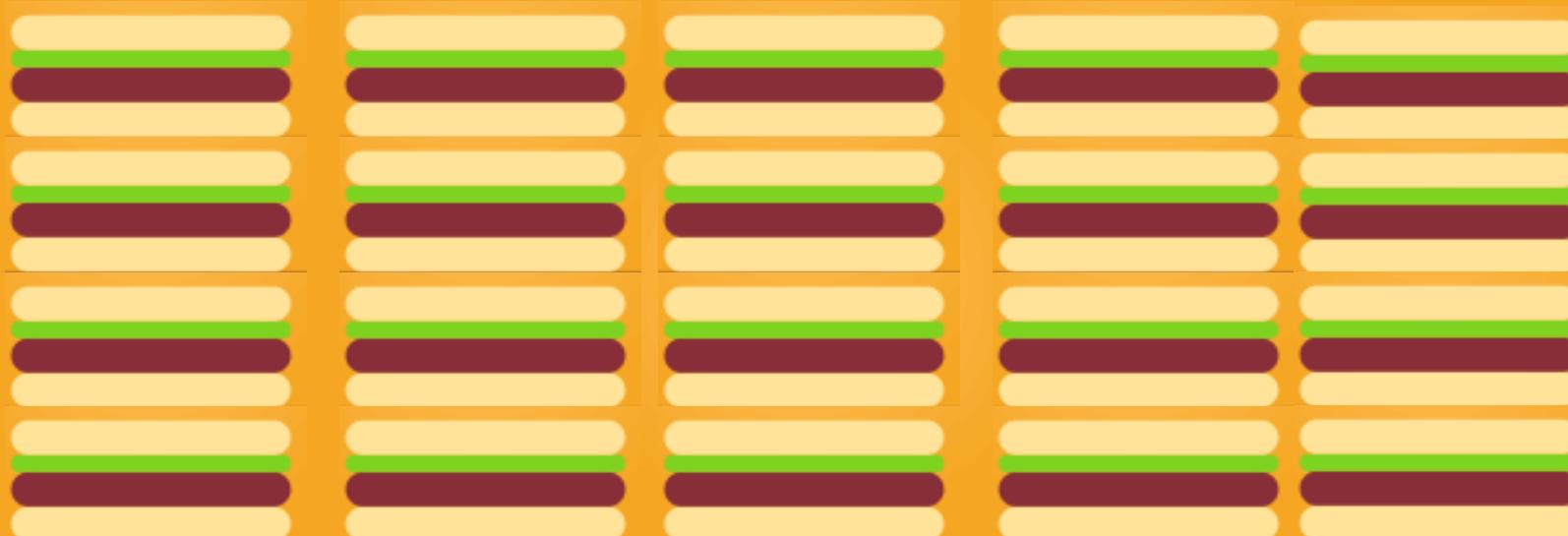


- 
- { Add bread
Add burger patty
Add pickles }

- 
- Add bread
 - Add burger patty
 - Add pickles
- Add bread
 - Add burger patty
 - Add pickles
- Add bread
 - Add burger patty
 - Add pickles

Repeat (100) times

{ Add bread
 Add burger patty
 Add pickles }



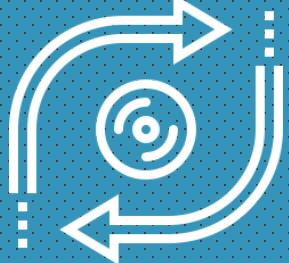
LOOPS



*For a cool YouTube video
you could repeat that particular video*



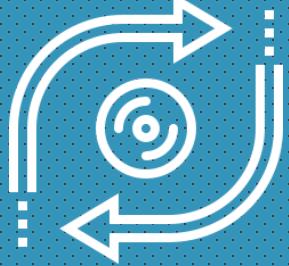
- *a certain number of minutes,*
- *or maybe 10 times*
- *or until the video is closed*
- *or until you are bored*



LOOPS



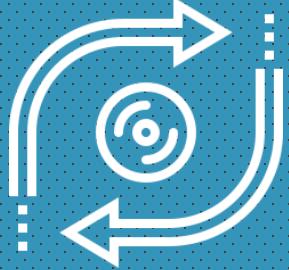
While (Alarm Is On)
Beep!!!



LOOPS



For 10 Minutes
Beep!!!



LOOPS

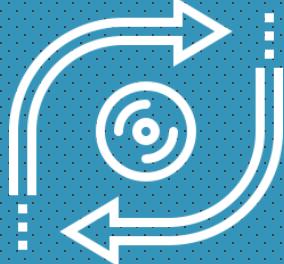


specify that an action is to be repeated while some condition remains true

The condition may be true or false.

If it's true, then the action, is performed.

This action will be performed repeatedly while the condition remains true



Limited to 40 minutes



while (Minutes is less than 41)
Streaming...



while (tank not full)
Fill...



For (10 Liters)
Fill...

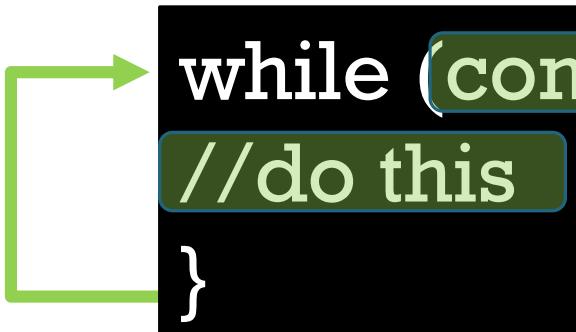
Remember how the if works

```
if (condition) {  
    //do this  
}
```



1. Checks if the condition is true
2. If the condition is true it will execute what's inside the if statement
3. If it is false it will ignore what's inside

WHILE LOOP



```
while (condition) {  
    //do this  
}
```

WHILE LOOP

```
while(true) {  
    System.out.println("Yaman");  
}
```

run:

Yaman

WHILE LOOP

```
int counter = 0;  
while (counter < 10) {  
    System.out.println("Yaman");  
}  
}
```



LOOPS

Counter Controlled Loop

Definite repetition

- 1) The user will enter the number of iterations
(N) Entries
- 2) The number of iterations are predefined
e.g. (50) Entries
- 3) The loop has a range from (x) to (y)
e.g. Range from (5) to (30)



Condition Controlled Loop

Indefinite repetition

- When the number of iterations are unknown
- Loop obtains data in each iteration
- The user will enter a dummy value to end
 - e.g. (Enter (-1) to end)
 - e.g. (Enter ('e') to end)

Q) How can the program determine when to stop?
A) One way to solve this problem is to use a special (distinct) value called a sentinel value (also called a signal value, a dummy value, or a flag value) to indicate “end of data entry”



LOOPS

Counter Controlled Loop

Number of iterations are known before entering the loop

EXAMPLES:

- e.g. Read (N) which represents the number of employees
- e.g. Print the number of integers from 75 to 190
- e.g. A company that has 50 departments, with N employees in each department, calculate the average salary...
- e.g. A class of ten students took a quiz.
- e.g. Read a fixed number of temperature values. Assume that the first value specifies the number of values remaining
- Compute the average grade of a class of 20 students.

Condition Controlled Loop

Number of iterations are unknown before entering the loop

EXAMPLES:

- e.g. Read a unknown number of students, (Note: if the student ID is -1 end)
- e.g. Count the number of digits in any number
- e.g. Your program should repeat this operation until exit option is selected (option 3)
- e.g. keep reading numbers until the user inputs a number out of range (integers in the range 0 to 100)
- e.g. Ask the User to Guess number between 1 and 100

COMBINATION OF BOTH (e.g. A company that has 50 departments, with a unknown number of employees in each department)



LOOPS

Counter Controlled Loop

Number of iterations are known before entering the loop

We will need

- 1) Initial value
- 2) A condition that tests for the final value
- 3) increment (or decrement) by which the control variable is modified each time through the loop
(to make the condition false after many iterations)

Condition Controlled Loop

Number of iterations are unknown before entering the loop

We will need a dummy value to end the loop
(A distinct vale from other regular values)

The loop includes a statement that obtains data

OR we can use the break; statement
The loop includes a condition

Available Transactions

Select your transaction.

Withdrawal

Deposit

Balance Inquiry

Transfers & Payments

Set Preferences

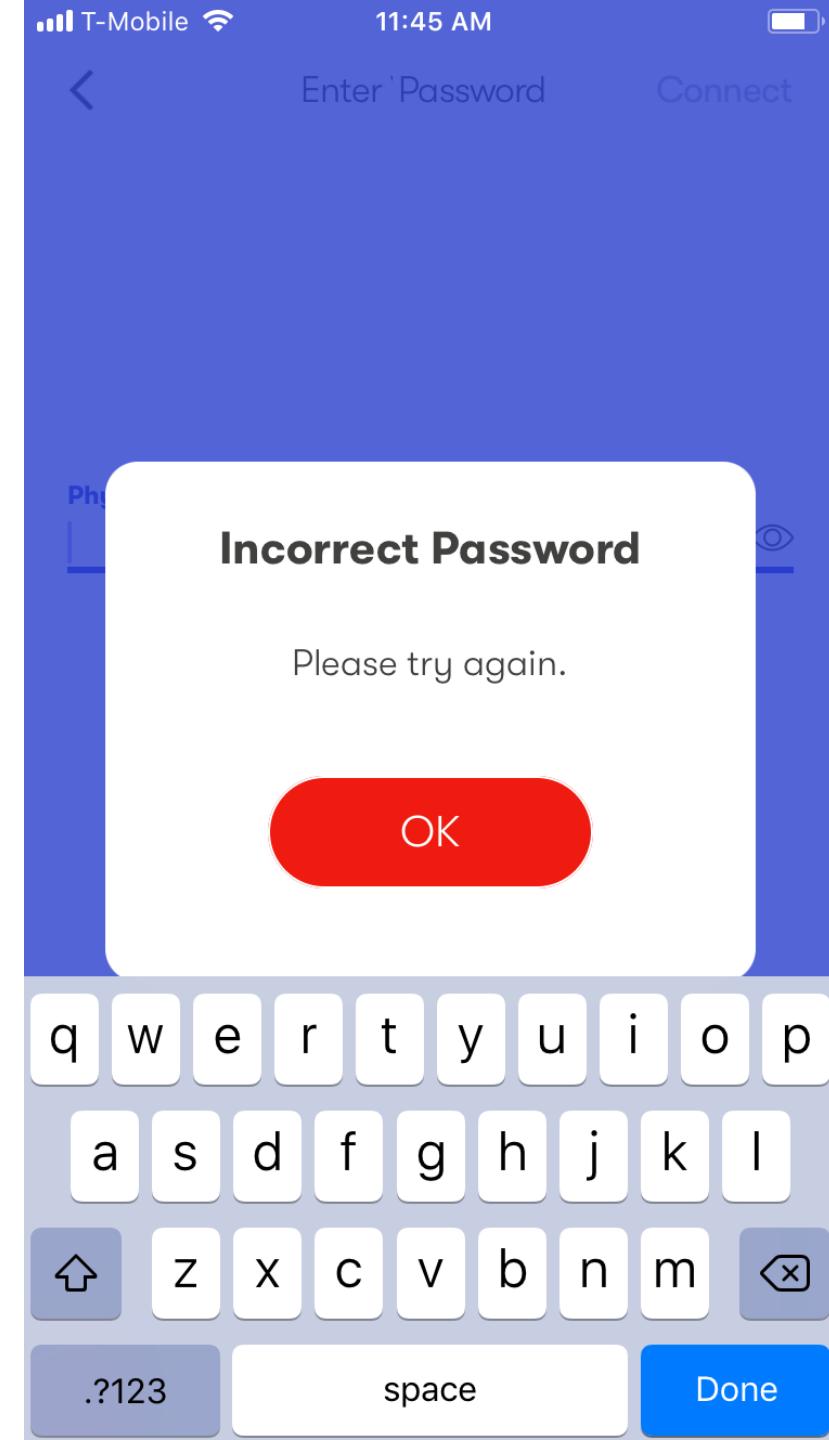
Additional Options >

Cancel

**The Program will
remain running, until
the user hits “Cancel”**



**Keep Trying,
until a correct
password is
provided**



Rating

Enter your rating [0-5], Enter "exit" when you are done:



- * Display :Thank you for your feedback!!!
- * Find the average rating value
- * IF (rating <3) Display in a input dialog: What is the reason for this low rating?



Challenge:

- * Display the rating in words [Bad – Excellent] depending on the final average
- * If the value is not in between [0-5], display an error massage, and let them enter a new value



THE FOR LOOP

```
for ( counter = 1; counter <= 10; ++counter )
```

Control variable name

Initial value of control variable

Final value of control variable for which the condition is true

Loop-continuation condition

Increment of control variable

The diagram illustrates the structure of a for loop. It shows the loop initialization, the loop continuation condition, and the loop incrementation. Annotations with arrows point to each component: the control variable name ('counter'), the initial value ('1'), the final value ('10'), the loop-continuation condition ('counter <= 10'), and the increment of the control variable ('++counter').

WHILE LOOP VS. FOR LOOP

```
expression1;
while ( expression2 ) {
    statement
    expression3;
}
```



```
for ( expression1; expression2; expression3 ) {
    statement
}
```

Examples Using the for Statement

1. Vary the control variable from 1 to 100 in increments of 1.

```
for ( i = 1; i <= 100; ++i )
```

2. Vary the control variable from 100 to 1 in increments of -1 (*decrements* of 1).

```
for ( i = 100; i >= 1; --i )
```

3. Vary the control variable from 7 to 77 in steps of 7.

```
for ( i = 7; i <= 77; i += 7 )
```

4. Vary the control variable from 20 to 2 in steps of -2.

```
for ( i = 20; i >= 2; i -= 2 )
```

5. Vary the control variable over the following sequence of values: 2, 5, 8, 11, 14, 17.

```
for ( j = 2; j <= 17; j += 3 )
```

6. Vary the control variable over the following sequence of values: 44, 33, 22, 11, 0.

```
for ( j = 44; j >= 0; j -= 11 )
```

- Accept n number from user and calculate the sum of all the numbers between 1 and n including n
- Given a number count the total number of digits in a number
- Count the number of vowels in a given string
- Print each word on a single line

➤ 'break' Statement

- Used inside the body of a loop statement or after a 'case' in a 'switch' statement
- Causes immediate exit from the loop or switch
- We use it when we want to exit early from the loop, by inserting it inside a condition statement
- Mostly used to exit after a 'flag value' is found

```
while (test Expression)
{
    // codes
    if (condition for break)
    {
        break;
    }
    // codes
}
```

➤ 'continue' Statement

- Used inside the body of a loop statement
- Skips any statement after it within the loop and jumps back to the first line in the block of code in the loop
- Mostly used to skip the code in special cases, for example if we want to skip the code after a negative number [if(n<0) continue;]

```
→ while (test Expression)
{
    // codes
    if (condition for continue)
    {
        continue;
    }
    // codes
}
```

KEEP READING NUMBERS AND COUNT THE #OF EVEN & #OF ODD

- **NOTE : SKIP NEGATIVE NUMBERS**
- **USE THE VALUE 0 TO END THE LOOP**

Average of all entries

average = sum of all entries / number of entries

How to calculate the average?

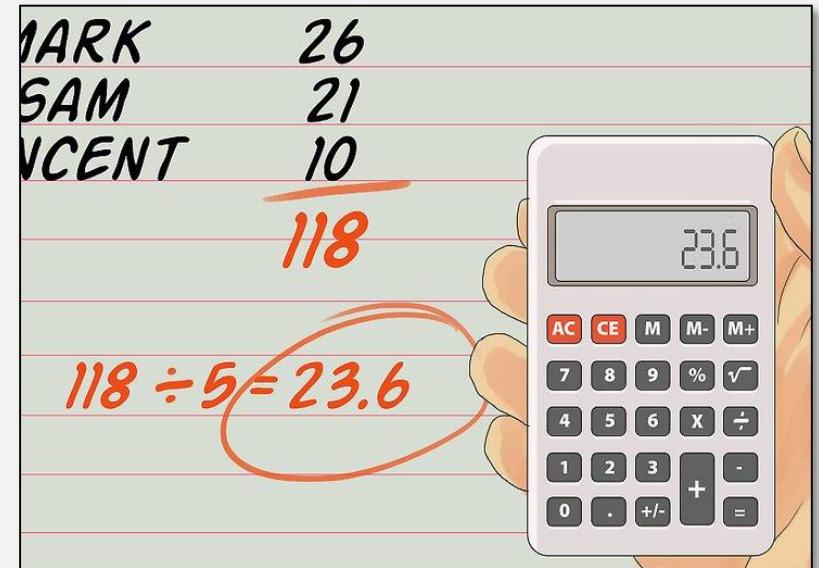
Step 1 → Start collecting values one at the time (using a input statement)

Step 2 → Add all values together using "sum" or "total"

Step 3 → Divide the output of Step 2 with total number of entries (after exiting the loop and collecting all values)

Step 4 → Display the output of Step 3

- Sum is calculated inside the loop
- Number of entries are either:
 - 1) Given & Known (N or any integer value)
 - 2) Unknown before execution
(We will need to add a counter after each entry to find the number of entries)



MAXIMUM & MINIMUM

To Find the max value (or largest value), there are two ways (we use one of them depending on the problem)

APPROACH 1) We assume that 'max' is the least possible value (e.g. The least possible value for 'GRADES' is 0)

APPROACH 2) We assume that the first entered value (first entry) is the 'max'
(we just assume the first value so that we can compare it to the remaining values)



//APPROACH 1) (e.g. GRADES MAX)

```
int max = 0;  
  
while ( i < 10 ) {  
    READ X  
    if ( x > max ) max = x;  
}
```

//APPROACH 2) (e.g. GRADES MAX)

```
int max;  
READ X  
max = x;  
  
while ( i < 10-1 ) {  
    READ x;  
    if ( x > max ) max = x;  
}
```

MINIMUM (LEAST VALUE)

To Find the minimum value (or least value), there are two ways (we use one of them depending on the problem)

APPROACH 1) We assume that 'min' is the largest possible value (e.g. The largest possible value for 'GRADES' is 100)

APPROACH 2) We assume that the first entered value (first entry) is the 'min'
(we just assume the first value so that we can compare it to the remaining values)



ANSWER PERCENTAGE

- Number of people who answered “A”
- Number of people who answered “B”
- Number of people who answered “C”
- Number of people who answered “D”

The image shows a game show set for the '50:50' segment. On the left, there are four options labeled F1 through F4. F1 has a '50:50' button, F2 has a telephone icon, F3 has a red 'X' over a speech bubble, and F4 has a large white 'W'. To the right is a bar chart with percentages: 35% for A, 41% for B, 0% for C, and 24% for D. Below the chart, a question in Arabic asks what verse集了所有阿拉伯字母。 At the bottom, four answers are listed: A: Ayat al-Kursi, B: The last verse of Surah Al-Fatihah, C: The last verse of Surah Al-Kursi, and D: None.

ما هي الآية التي جمعت كل حروف اللغة العربية؟!

A: آية الكرسي B: الآية الأخيرة من سورة الفتح
C: الآية الأخيرة من سورة الكرسي D: لا يوجد

Answer	Percentage
A	35%
B	41%
C	0%
D	24%

Display Prime Numbers Between two Intervals

**Display Uppercased A to Z using for loop
Display Lowercased a to z using for loop**

Example: Factors of a Positive Integer

Generate Multiplication Table using for loop

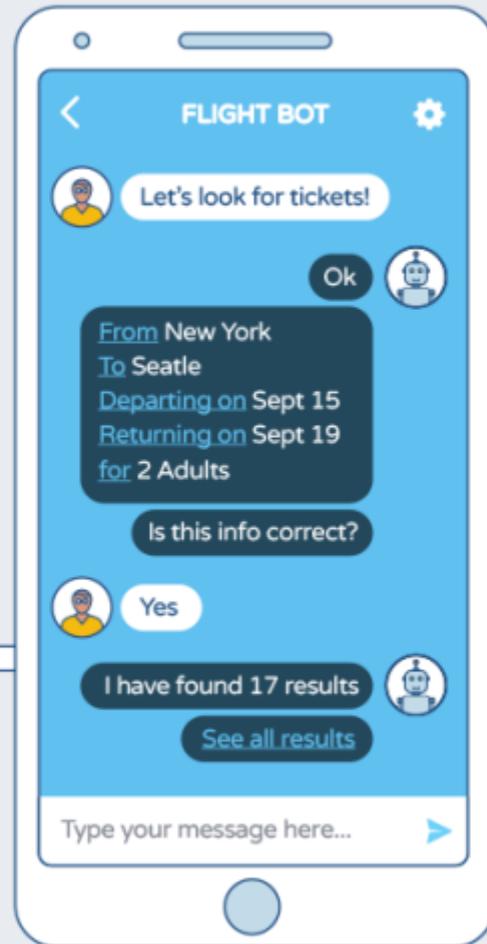
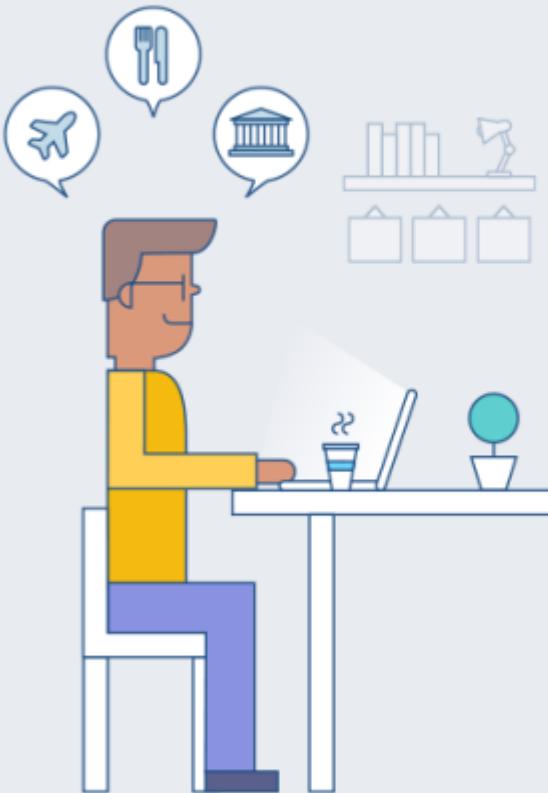
Build a simple chatbot

What kind of food do you sell here?

What is your website?

What is your location

Do you have any jobs?

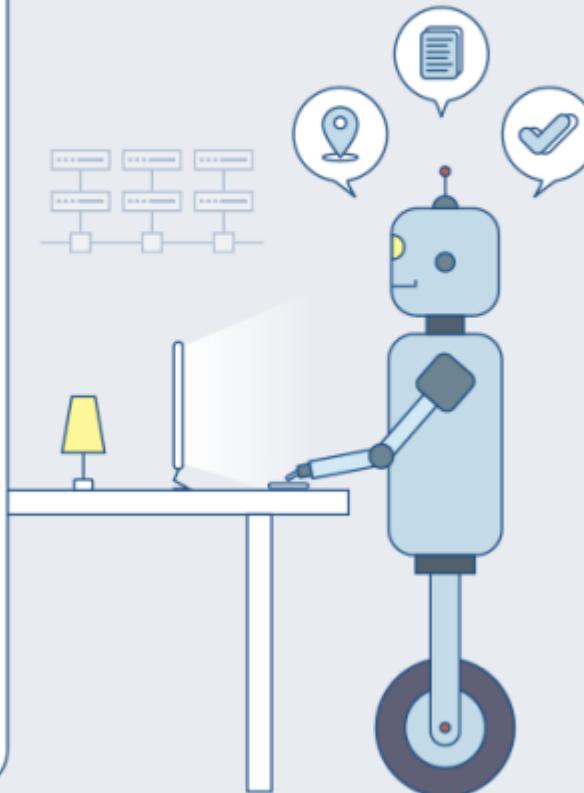


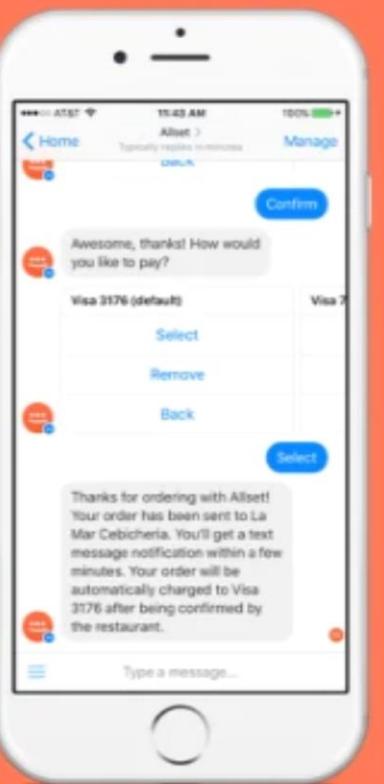
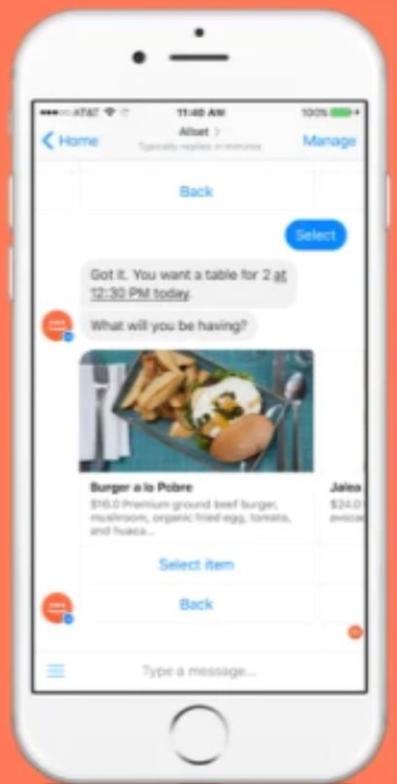
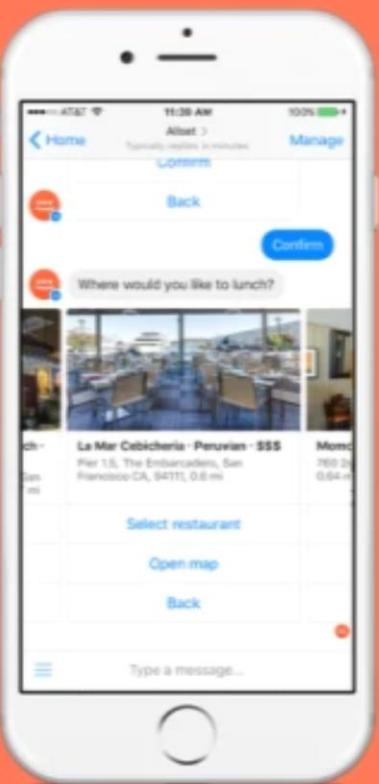
Indian, Chinese, Arabic

cyberdeal.vision

Amman, Jordan

No





Restaurant Ordering Bot

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

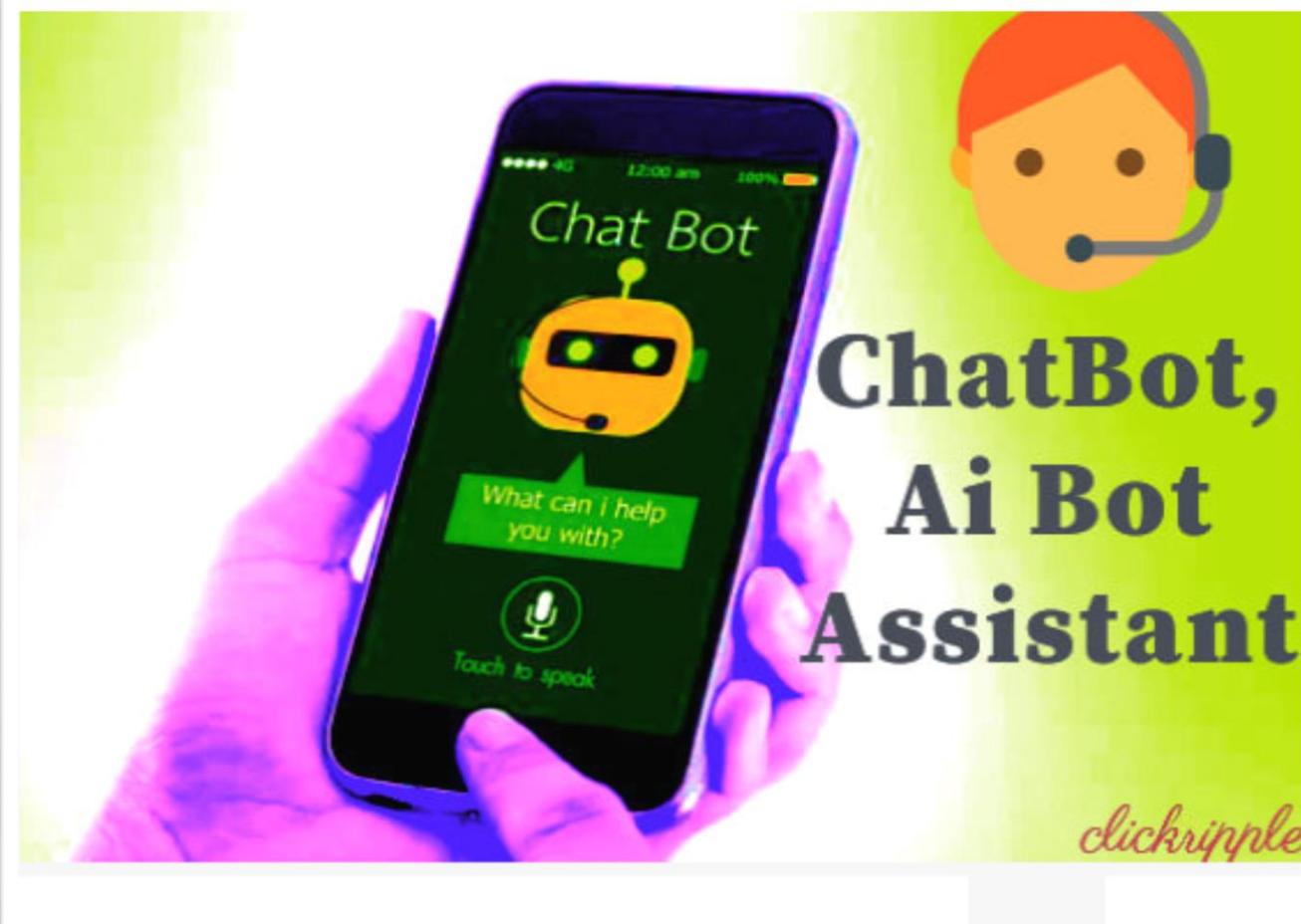
Continue (\$495)

[Compare Packages](#)

[Contact Seller](#)

\$495





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

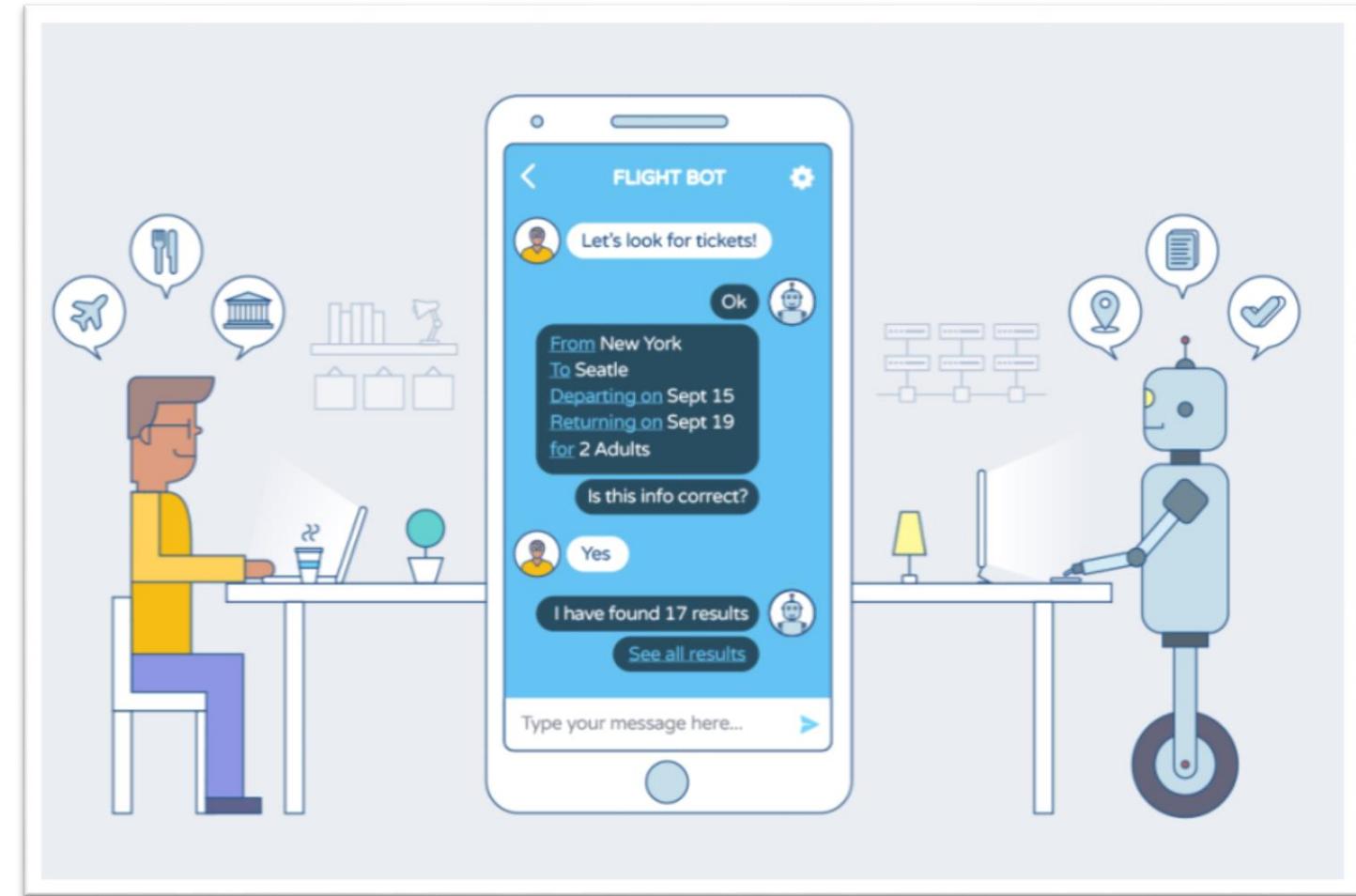
- Chicken Tikka (4 JD's)
- Butter Chicken (4.5 JD's)
- Biryani (5 JD's)

* Arabic Food

- Mansaf
- Kabseh
- Mlokhyah

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