
**SUBJECT:** OOP

**REG NO.:** FA24-BSE-129

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**SUBMITTED TO:** SIR NAUMAN KAHN

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## Topics Covered in Lab 3:

## Methods with parameters and return values also mini project.

### Q1: Practice Method Question

### i. Student Marks Calculator Instruction:

**Implement the following functions:**

- **void totalMarks (int m1, int m2, int m3) → returns the sum of three subject marks.**
- **double averageMarks () → returns the average.**
- **char grade (double avg) → returns grade (A, B, C,F) based on average.**

**a) Marks ≥ 85 → "A" b) Marks ≥ 70 → "B" c) Marks ≥ 50 → "C" d) Otherwise → "Fail"**

## Task:

**Ask the user for 3 subject marks, use functions, and display total, average, and grade.**

```java
/*
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 */
package functions1;

import java.util.Scanner;
public class Functions1 {

     double  totalMarks(int m1,int m2, int m3)
     {
            int TM = m1+m2+m3;
             return TM;
     }
     double averageMarks(double  TM){
         return TM/3.0;
     }
     char grade(double avg){
         if(avg>=85)
           return('A');
                  else if(avg>=70)
                      return('B');
                  else if(avg>=50)
         return('C');
         else
         return('F');
     }
    public static void main(String[] args) {
      Scanner input=new Scanner(System.in);
        System.out.println("Enter marks m1");
        int m1=input.nextInt();
        System.out.println("Enter marks m2");
        int m2=input.nextInt();
        System.out.println("Enter marks m3");
        int m3=input.nextInt();


        Functions1 f1 =new Functions1();
        double c= f1.totalMarks(m1,m2,m3);
        System.out.println("total marks :"+c);
        double avg = f1.averageMarks(c);
        System.out.println("Avg" + avg);
        System.out.println("Grade :" + f1.grade(avg));
    }

}
```
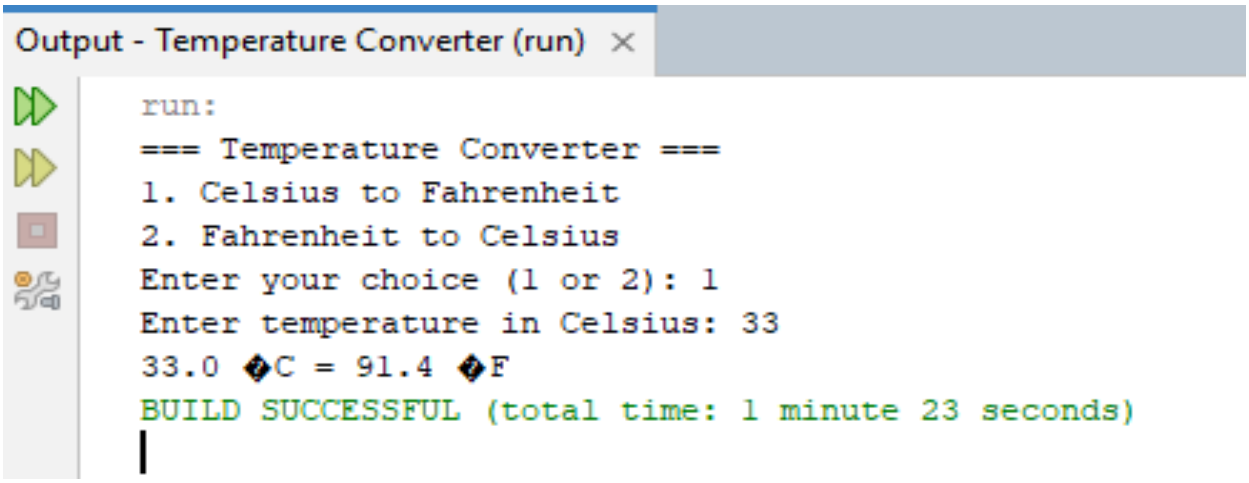




**ii. Split bill Calculator**

**Instruction:**

You and your friends went to a restaurant. Write a program with the following methods:

**a) double EnterBill(double billAmount)**

 Takes the restaurant's total bill amount and returns it.

**b) void splitBill ()**

 Divides the total bill equally among all people

 ***Formula: Amount per person = totalAmount / people***

Your program should: Take the total restaurant bill and the number of people as input.

 Use enterBill to confirm the total bill.

 Call splitBill to calculate how much each person should pay.

 Display both the total bill and the per person share.

**Sample Input/Output**

***Input:*** *Total Bill = 2500, People = 5*

***Output:***

*Total Bill = 2500.0*

*Each person pays = 500.0*

```java
package javalabtask;
import java.util.Scanner

public class Javalabtask {
    static Scanner x = new Scanner(System.in);
    public static double EnterBill(double billamount) {
        return billamount;
    }
    public static void SplitBill(double a, int b) {
        if (b == 0) {
            System.out.println("Error: Number of people cannot be 0.");
            return;
        }
        double AmountPerPerson = a / b;
        System.out.println("Amount Per Person = " + AmountPerPerson);
    }
    public static void main(String[] args) {
        System.out.print("Enter restaurant bill: ");
        double bill = x.nextDouble();
        System.out.print("Enter total number of people: ");
        int people = x.nextInt();
        double b = EnterBill(bill);
        System.out.println("Confirmed Total Bill = " + b);
        SplitBill(bill, people);
    }
}
```

```
run:
Enter restaurant bill: 5000
Enter total number of people: 5
Confirmed Total Bill = 5000.0
Amount Per Person = 1000.0
BUILD SUCCESSFUL (total time: 15 seconds)
```

## iii. Password Strength Checker Instruction Write a method void checkPassword(String password) that evaluates the strength of a password based on the following rules:

- "Too Short" if length < 6
- "Weak" if length is 6–10 and contains only letters or only digits
- "Medium" if length is 6–10 and contains both letters and digits
- "Strong" if length > 10

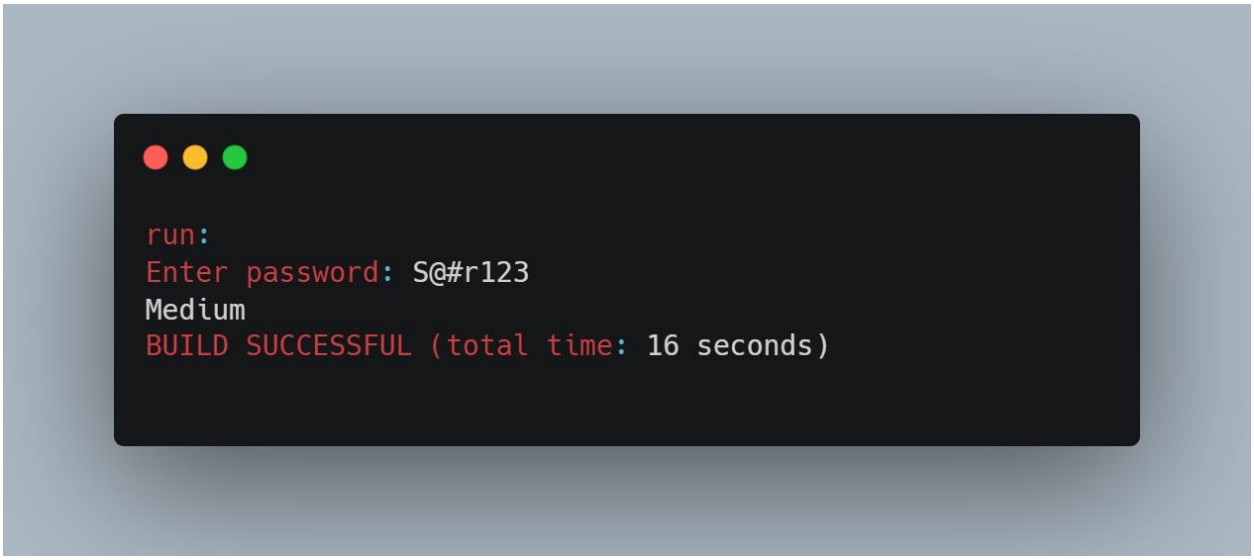
and contains letters, digits, and at least one special character (!@#$%^&*)

## Sample Input/Output

Input: "abc"
Output: Too Short
Input: "abcdef"
Output: Weak
Input: "abc12345"
Output: Medium
Input: "Abc12345"
Output: Strong (because it has uppercase + lowercase)
Input: "Abc12345@secure"

**Output: Strong**

```java
package javalabtask;
import java.util.Scanner;
public class PasswordChecker {
    public static void checkPassword(String password) {
        int length = password.length();
        boolean hasLetter = false;
        boolean hasDigit = false;
        boolean hasSpecial = false;
        for (char ch : password.toCharArray()) {
            if (Character.isLetter(ch)) {
                hasLetter = true;
            } else if (Character.isDigit(ch)) {
                hasDigit = true;
            } else if ("!@#$%^&*".indexOf(ch) != -1) {
                hasSpecial = true;
            }
        }
        if (length < 6) {
            System.out.println("Too Short");
        }
        else if (length <= 10) {
            if ((hasLetter && !hasDigit) || (!hasLetter
&& hasDigit)) {
                System.out.println("Weak");
            } else if (hasLetter && hasDigit) {
                System.out.println("Medium");
            } else {
                System.out.println("Weak");
            }
        }
        else {
            if (hasLetter && hasDigit && hasSpecial) {
                System.out.println("Strong");
            } else if (hasLetter && hasDigit) {
                System.out.println("Strong");
            } else {
                System.out.println("Weak");
            }
        }
    }

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter password: ");
        String pwd = sc.nextLine();

        checkPassword(pwd);
    }
}
```


run:
Enter password: S@#r123
Medium
BUILD SUCCESSFUL (total time: 16 seconds)