**Assignment #1**

Q.1: Create two integer variables length and breadth and assign values then check if they are square values or rectangle values.  
ie: if both values are equal then it's square otherwise rectangle.

**CODE:**

void main() {

  int length = 5;

  int breadth = 5;

  if (length == breadth) {

    print('The values represent a square.');

  } else {

    print('The values represent a rectangle.');

  }

}

**OUTPUT:**

****

Q.2: Take two variables and store age then using if/else condition to determine oldest and youngest among them.

**CODE:**

void main() {

  int age1 = 25;

  int age2 = 30;

  if (age1 > age2) {

    print('The first person is the oldest.');

    print('The second person is the youngest.');

  } else if (age2 > age1) {

    print('The second person is the oldest.');

    print('The first person is the youngest.');

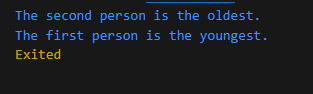
  } else {

    print('Both persons are of the same age.');

  }

}

**OUTPUT:**

****

Q.3: A student will not be allowed to sit in exam if his/her attendance is less than 75%. Create integer variables and assign value:  
Number of classes held = 16,  
Number of classes attended = 10,  
and print percentage of class attended.  
Is student is allowed to sit in exam or not?

**CODE:**

void main() {

  int numberOfClassesHeld = 16;

  int numberOfClassesAttended = 10;

  double attendancePercentage = (numberOfClassesAttended / numberOfClassesHeld) \* 100;

  print('Attendance Percentage: $attendancePercentage%');

  if (attendancePercentage >= 75) {

    print('The student is allowed to sit in the exam.');

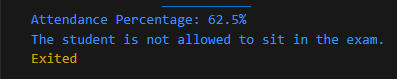
  } else {

    print('The student is not allowed to sit in the exam.');

  }

}

**OUTPUT:**

****

Q.4: Create integer variable assign any year to it and check if a year is leap year or not.  
If a year is divisible by 4 then it is leap year but if the year is century year like 2000, 1900, 2100 then it must be divisible by 400.  
i.e: Use % ( modulus ) operator.

**CODE:**

void main() {

  int year = 2024;

  if (year % 4 == 0) {

    if (year % 100 == 0) {

      if (year % 400 == 0) {

        print('$year is a leap year.');

      } else {

        print('$year is not a leap year.');

      }

    } else {

      print('$year is a leap year.');

    }

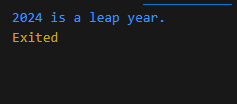
  } else {

    print('$year is not a leap year.');

  }

}

**OUTPUT:**

****

Q.5 Write a program to read temperature in centigrade and display a suitable message according to temperature:  
You have num variable temperature = 42;  
Now print the message according to temperature:  
temp < 0 then Freezing weather  
temp 0-10 then Very Cold weather  
temp 10-20 then Cold weather  
temp 20-30 then Normal in Temp  
temp 30-40 then Its Hot  
temp >=40 then Its Very Hot

**CODE:**

void main() {

  num temperature = 42;

  if (temperature < 0) {

    print('Freezing weather');

  } else if (temperature >= 0 && temperature <= 10) {

    print('Very Cold weather');

  } else if (temperature > 10 && temperature <= 20) {

    print('Cold weather');

  } else if (temperature > 20 && temperature <= 30) {

    print('Normal in Temp');

  } else if (temperature > 30 && temperature <= 40) {

    print('It\'s Hot');

  } else {

    print('It\'s Very Hot');

  }

}

**OUTPUT:**

****

Q.6: Write a program to check whether an alphabet is a vowel or consonant.

**CODE:**

void main() {

  String alphabet = 'a';

  if (alphabet == 'a' ||

      alphabet == 'e' ||

      alphabet == 'i' ||

      alphabet == 'o' ||

      alphabet == 'u' ||

      alphabet == 'A' ||

      alphabet == 'E' ||

      alphabet == 'I' ||

      alphabet == 'O' ||

      alphabet == 'U'

      ) {

    print('$alphabet is a vowel.');

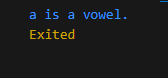
  } else {

    print('$alphabet is a consonant.');

  }

}

**OUTPUT:**

****

Q.7: Write a program to calculate and print the Electricity bill of a given customer. Create variable for customer id, name, unit consumed by the user, bill\_amount and print the total amount the customer needs to pay. The charge are as follow :  
  
Unit    Charge/unit  
upto 199    @1.20  
200 and above but less than 400    @1.50  
400 and above but less than 600    @1.80  
600 and above             @2.00;  
  
Test Data :  
id: 1001  
name: James  
units: 800  
Expected Output :  
Customer IDNO :1001  
Customer Name :James  
unit Consumed :800  
Amount Charges @Rs. 2.00 per unit : 1600.00  
Net Bill Amount : 1600.00

**CODE:**

void main() {

  int customerId = 1001;

  String customerName = 'James';

  int unitsConsumed = 800;

  double chargePerUnit;

  if (unitsConsumed <= 199) {

    chargePerUnit = 1.20;

  } else if (unitsConsumed >= 200 && unitsConsumed < 400) {

    chargePerUnit = 1.50;

  } else if (unitsConsumed >= 400 && unitsConsumed < 600) {

    chargePerUnit = 1.80;

  } else {

    chargePerUnit = 2.00;

  }

  double billAmount = unitsConsumed \* chargePerUnit;

  print('Customer IDNO: $customerId');

  print('Customer Name: $customerName');

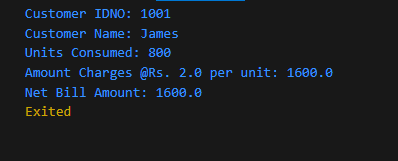
  print('Units Consumed: $unitsConsumed');

  print('Amount Charges @Rs. $chargePerUnit per unit: $billAmount');

  print('Net Bill Amount: $billAmount');

}

**OUTPUT:**

****

Q8: Create a marksheet using operators of at least 5 subjects and output should have Student Name, Student Roll Number, Class, Percentage, Grade Obtained etc.  
i.e: Percentage should be rounded upto 2 decimal places only.

**CODE:**

void main() {

  String studentName = 'John Doe';

  int rollNumber = 1001;

  String className = 'Flutter Class';

  List<int> marks = [85, 90, 78, 92, 88]; // Marks obtained in each subject

  int totalMarks = 500; // Total marks for all subjects

  double obtainedMarks = 0;

  for (int number in marks) {

    obtainedMarks += number;

  }

  double percentage = (obtainedMarks / totalMarks) \* 100;

  String grade;

  if (percentage >= 90) {

    grade = 'A';

  } else if (percentage >= 80) {

    grade = 'B';

  } else if (percentage >= 70) {

    grade = 'C';

  } else if (percentage >= 60) {

    grade = 'D';

  } else {

    grade = 'F';

  }

  print('Student Name: $studentName');

  print('Roll Number: $rollNumber');

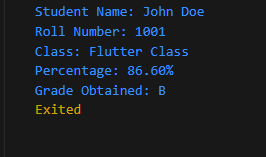
  print('Class: $className');

  print('Percentage: ${percentage.toStringAsFixed(2)}%');

  print('Grade Obtained: $grade');

}

**OUTPUT:**

****

Q9: Check if the number is even or odd, If number is even then check if this is divisible by 5 or not & if number is odd then check if this is divisible by 7 or not.

**CODE:**

void checkNumber(int number) {

  if (number % 2 == 0) {

    print('Number is even.');

    if (number % 5 == 0) {

      print('Number is divisible by 5.');

    } else {

      print('Number is not divisible by 5.');

    }

  } else {

    print('Number is odd.');

    if (number % 7 == 0) {

      print('Number is divisible by 7.');

    } else {

      print('Number is not divisible by 7.');

    }

  }

}

void main() {

  int number = 7;

  checkNumber(number);

}

**OUTPUT:**

Q10: Write a program that takes three numbers from the user and prints the greatest number & lowest number.

**CODE:**

import 'dart:io';

void main() {

  print('Enter three numbers:');

  int num1 = int.parse(stdin.readLineSync()!);

  int num2 = int.parse(stdin.readLineSync()!);

  int num3 = int.parse(stdin.readLineSync()!);

  int maxNumber = num1;

  int minNumber = num1;

  if (num2 > maxNumber) {

    maxNumber = num2;

  }

  if (num3 > maxNumber) {

    maxNumber = num3;

  }

  if (num2 < minNumber) {

    minNumber = num2;

  }

  if (num3 < minNumber) {

    minNumber = num3;

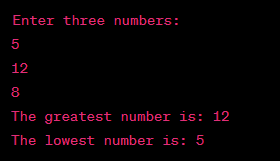
  }

  print('The greatest number is: $maxNumber');

  print('The lowest number is: $minNumber');

}

**OUTPUT:**

****

Q11: Write a program to calculate root of any number.  
i.e: √y = y½

**CODE:**

import 'dart:math';

void main() {

  double number = 16;

  double squareRoot = sqrt(number);

  print('The square root of $number is $squareRoot');

}

**OUTPUT:**

****

Q12: Write a program to convert Celsius to Fahrenheit   .  
i.e: Temperature in degrees Fahrenheit (°F) = (Temperature in degrees Celsius (°C) \* 9/5) + 32

**CODE:**

void main() {

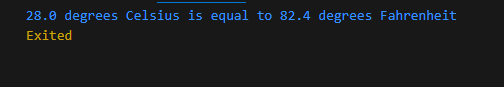
  double celsius = 28;

  double fahrenheit = (celsius \* 9 / 5) + 32;

  print('$celsius degrees Celsius is equal to $fahrenheit degrees Fahrenheit');

}

**OUTPUT:**

****