M.SHAHERYAR SIDDQUI

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 :

```
The values represent a square.
Exited
```

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 :

```
The second person is the oldest.
The first person is the youngest.
Exited
```

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 :

```
Attendance Percentage: 62.5%
The student is not allowed to sit in the exam.
Exited
```

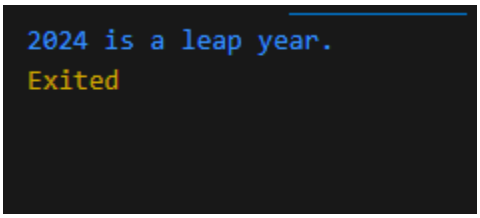
Q.4: Create integer variable assign any year to it and check if a year is leap year or not.
If a year is divisible by 4 then it is leap year but if the year is century year like 2000, 1900, 2100 then it must be divisible by 400.
i.e: Use % (modulus) operator.

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:

```
It's Very Hot
Exited
```

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.');
  }
}
```

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OUTPUT :

```
a is a vowel.
Exited
```

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 :

```
Customer IDNO: 1001
Customer Name: James
Units Consumed: 800
Amount Charges @Rs. 2.0 per unit: 1600.0
Net Bill Amount: 1600.0
Exited
```

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 :

```
Student Name: John Doe
Roll Number: 1001
Class: Flutter Class
Percentage: 86.60%
Grade Obtained: B
Exited
```

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:

```
Enter three numbers:
5
12
8
The greatest number is: 12
The lowest number is: 5
```

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:

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```
The square root of 16.0 is 4.0
Exited
```

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:

```
28.0 degrees Celsius is equal to 82.4 degrees Fahrenheit
Exited
```