

Assignment # 1:

By: Durr e Najaf

Code:

```
import 'dart:math'; // Importing the math library for sqrt()

void main() {

  // 1. Calculate Simple Interest

  double principal = 1000;

  double rate = 5;

  double time = 2;

  double simpleInterest = (principal * rate * time) / 100;

  print('1. Simple Interest: $simpleInterest');


  // 2. Convert Temperature

  double celsius = 25;

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

  print('2. $celsius°C = $fahrenheit°F');


  fahrenheit = 77;

  celsius = (fahrenheit - 32) * 5/9;

  print(' $fahrenheit°F = $celsius°C');


  // 3. Check Leap Year

  int year = 2024;

  if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {

    print('3. $year is a leap year.');
```

}

```
  } else {

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

}

```
  // 4. Calculate Factorial

  int number = 5;

  int factorial = 1;
```

```

for (int i = 1; i <= number; i++) {

    factorial *= i;

}

print('4. Factorial of $number is $factorial');


// 5. Check Prime Number
int primeCandidate = 7;

bool isPrime = true;

for (int i = 2; i <= primeCandidate ~/ 2; i++) {

    if (primeCandidate % i == 0) {

        isPrime = false;

        break;

    }

}

print('5. $primeCandidate is ${isPrime ? 'a prime' : 'not a prime'} number.');
```



```

// 6. Generate Fibonacci Series

int terms = 10;

int a = 0, b = 1;

print('6. Fibonacci series:');

for (int i = 0; i < terms; i++) {

    print('  $a');

    int next = a + b;

    a = b;

    b = next;

}


// 7. Reverse a String

String originalString = "Durr e Najaf";

String reversedString = originalString.split("").reversed.join("");

print('7. Original: $originalString, Reversed: $reversedString');
```



```

// 8. Find Maximum Number

int num1 = 12, num2 = 25, num3 = 7;

int maxNum = num1;
```

```
if (num2 > maxNum) maxNum = num2;
if (num3 > maxNum) maxNum = num3;
print('8. Maximum number among $num1, $num2, $num3 is $maxNum');
```

```
// 9. Calculate BMI
```

```
double weight = 70; // in kg
double height = 1.75; // in meters
double bmi = weight / (height * height);
print('9. BMI is $bmi');
```

```
// 10. Find Roots of Quadratic Equation
```

```
double a1 = 1, b1 = -3, c1 = 2;
double discriminant = b1 * b1 - 4 * a1 * c1;
if (discriminant > 0) {
    double root1 = (-b1 + sqrt(discriminant)) / (2 * a1); // Use sqrt() function
    double root2 = (-b1 - sqrt(discriminant)) / (2 * a1); // Use sqrt() function
    print('10. Roots are $root1 and $root2');
} else if (discriminant == 0) {
    double root = -b1 / (2 * a1);
    print(' Root is $root');
} else {
    print(' Roots are complex and different.');
```

```
// 11. Check Palindrome Number
```

```
int palindromeCandidate = 121;
int reversed = 0, original = palindromeCandidate;
while (palindromeCandidate > 0) {
    int digit = palindromeCandidate % 10;
    reversed = reversed * 10 + digit;
    palindromeCandidate ~/= 10;
}
print('11. $original is ${original == reversed ? 'a palindrome' : 'not a palindrome'} number.');
```

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```
1 import 'dart:math'; // Importing the math library for sqrt()
2
3 void main() {
4   // 1. Calculate Simple Interest
5   double principal = 1000;
6   double rate = 5;
7   double time = 2;
8   double simpleInterest = (principal * rate * time) / 100;
9   print('1. Simple Interest: $simpleInterest');
10
11  // 2. Convert Temperature
12  double celsius = 25;
13  double fahrenheit = (celsius * 9/5) + 32;
14  print('2. $celsius°C = $fahrenheit°F');
15
16  fahrenheit = 77;
17  celsius = (fahrenheit - 32) * 5/9;
18  print('   $fahrenheit°F = $celsius°C');
19
20  // 3. Check Leap Year
21  int year = 2024;
22  if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
23    print('3. $year is a leap year.');
```

Run

```
24  } else {
25    print('   $year is not a leap year.');
```

```
26  }
27
28  // 4. Calculate Factorial
29  int number = 5;
30  int factorial = 1;
31  for (int i = 1; i <= number; i++) {
32    factorial *= i;
33  }
34  print('4. Factorial of $number is $factorial');
```

```
35 }
```

1. Simple Interest: 100

2. 25°C = 77°F

77°F = 25°C

3. 2024 is a leap year.

4. Factorial of 5 is 120

5. 7 is a prime number.

6. Fibonacci series:

0

1

1

2

3

5

8

13

21

34

7. Original: Durr e Najaf, Reversed: fajaN e rruD

8. Maximum number among 12, 25, 7 is 25

9. BMI is 22.857142857142858

10. Roots are 2 and 1

11. 121 is a palindrome number.

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