ASSIGNMENT – 2

Dart Program Structure:

A Dart program typically follows a structured format. Here's a basic outline:

dart

```
// Import statements for libraries


// Top-level variables and constants


// Function declarations


// The main function, the entry point of the program
void main() {
  // Program execution starts here


  // Statements and expressions


  // Function calls or other logic


  // Print output or perform actions


  // The main function usually returns void
}
```

Data Types in Dart:

Dart is a statically-typed language, which means that variable types are known at compile-time. Here are some basic data types in Dart:

1. **int:** Represents integer values.

   dart

   ```
   int age = 25;
   ```

2. **double:** Represents floating-point values.

```
dart
double price = 29.99;
```

3. **String:** Represents sequences of characters.

```
dart
String name = "John";
```

4. **bool:** Represents boolean values.

```
dart
bool isStudent = true;
```

5. **List:** Represents an ordered collection of items.

```
dart
List<int> numbers = [1, 2, 3, 4];
```

6. **Map:** Represents a collection of key-value pairs.

```
dart
Map<String, dynamic> person = {'name': 'Alice', 'age': 30};
```

Loop Structures in Dart:

Dart supports both for and while loops.

For Loop:

dart

```
for (int i = 0; i < 5; i++) {
  // Code to be repeated
  print(i);
}
```

While Loop:

dart

```
int count = 0;
while (count < 5) {
  // Code to be repeated
  print(count);
  count++;
}
```

Conditional Structures in Dart:

Dart uses if, else if, and else for conditional logic.

If Statement:

dart

```
int age = 18;
if (age >= 18) {
  print("You are an adult.");
} else {
  print("You are a minor.");
}
```

If-Else If-Else Statement:

dart

```
int score = 75;
if (score >= 90) {
  print("A");
} else if (score >= 80) {
  print("B");
} else if (score >= 70) {
  print("C");
} else {
  print("Fail");
}
```

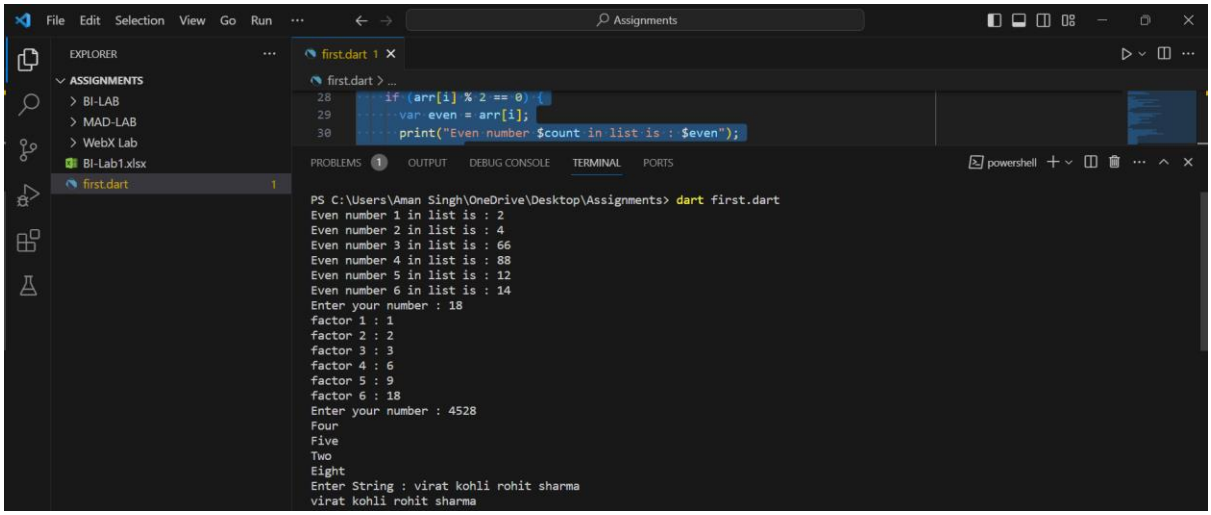
PROGRAMS –

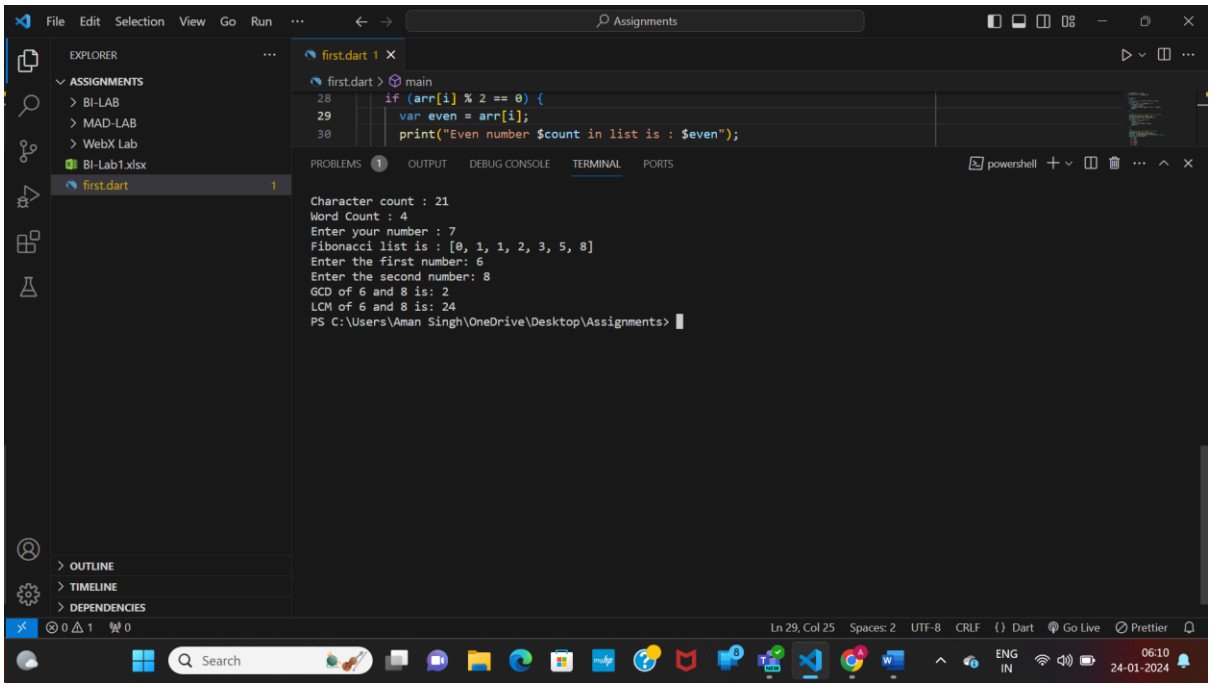
```dart
import 'dart:ffi';
import 'dart:io';

int fibonacci(int n) {
  if (n == 0) return 0;
  if (n == 1 || n == 2) return 1;
  return fibonacci(n - 1) + fibonacci(n - 2);
}

int findGCD(int a, int b) {
  while (b != 0) {
    var temp = b;
    b = a % b;
    a = temp;
  }
  return a;
}

int findLCM(int a, int b) {
  return (a * b) ~/ findGCD(a, b);
}

void main() {
  //Q.1
  var arr = [1, 2, 3, 4, 66, 77, 88, 13, 12, 14];
  var count = 1;
```

```
for (var i = 0; i < arr.length; i++) {
  if (arr[i] % 2 == 0) {
    var even = arr[i];
    print("Even number $count in list is : $even");
    count++;
  }
}

// Q.2
// Taking user input of integer and print its factor
stdout.write("Enter your number : ");
int num = int.parse(stdin.readLineSync()!);
int counter = 1;
for (int i = 1; i <= num; i++) {
  if (num % i == 0) {
    int ans = i;
    print("factor $counter : $ans");
    counter++;
  }
}

//Q.3
// Taking int input and printing it in words
stdout.write("Enter your number : ");
int num2 = int.parse(stdin.readLineSync()!);
String str = num2.toString(); // converting into string
Map<String, String> hmap = {
  '0': "Zero",
  '1': "One",
  '2': "Two",
  '3': "Three",
  '4': "Four",
  '5': "Five",
  '6': "Six",
  '7': "Seven",
  '8': "Eight",
  '9': "Nine"
};

for (var i = 0; i < str.length; i++) {
  String char = str[i];
  // print("$char");
  var word = hmap[char];
  print("$word");
}

// Q.4
// print count of words and character in string
```

```
  stdout.write("Enter String : ");
  String s = stdin.readLineSync()!;
  print("$s");
  int charCount = 0;
  int wordCount = 0;
  for (var i = 0; i < s.length; i++) {
    String char = s[i];
    print("$char");
    if (char == ' ') {
      wordCount++;
    } else {
      charCount++;
    }
  }
  wordCount++;
  print("Character count : $charCount");
  print("Word Count : $wordCount");

  // Q.5 --> print fibonacci series
  // creating function
  var fibonacciList = [];
  stdout.write("Enter your number : ");
  int n = int.parse(stdin.readLineSync()!);
  for (var i = 0; i < n; i++) {
    fibonacciList.add(fibonacci(i));
  }
  print("Fibonacci list is : $fibonacciList");

  // Q.6
  stdout.write('Enter the first number: ');
  int n1 = int.parse(stdin.readLineSync()!);

  stdout.write('Enter the second number: ');
  int n2 = int.parse(stdin.readLineSync()!);

  int gcd = findGCD(n1, n2);
  int lcm = findLCM(n1, n2);

  print('GCD of $n1 and $n2 is: $gcd');
  print('LCM of $n1 and $n2 is: $lcm');
}
```

OUTPUT –


File Edit Selection View Go Run
Assignments
EXPLORER
ASSIGNMENTS
BI-LAB
MAD-LAB
WebX Lab
BI-Lab1.xlsx
first.dart 1
first.dart > ...
if (arr[i] % 2 == 0) {
var even = arr[i];
print("Even number $count in list is : $even");
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS
powershell
PS C:\Users\Aman Singh\OneDrive\Desktop\Assignments> dart first.dart
Even number 1 in list is : 2
Even number 2 in list is : 4
Even number 3 in list is : 66
Even number 4 in list is : 88
Even number 5 in list is : 12
Even number 6 in list is : 14
Enter your number : 18
factor 1 : 1
factor 2 : 2
factor 3 : 3
factor 4 : 6
factor 5 : 9
factor 6 : 18
Enter your number : 4528
Four
Five
Two
Eight
Enter String : virat kohli rohit sharma
virat kohli rohit sharma


File Edit Selection View Go Run
Assignments
EXPLORER
ASSIGNMENTS
BI-LAB
MAD-LAB
WebX Lab
BI-Lab1.xlsx
first.dart 1
first.dart > main
if (arr[i] % 2 == 0) {
var even = arr[i];
print("Even number $count in list is : $even");
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS
powershell
Character count : 21
Word Count : 4
Enter your number : 7
Fibonacci list is : [0, 1, 1, 2, 3, 5, 8]
Enter the first number: 6
Enter the second number: 8
GCD of 6 and 8 is: 2
LCM of 6 and 8 is: 24
PS C:\Users\Aman Singh\OneDrive\Desktop\Assignments>
OUTLINE
TIMELINE
DEPENDENCIES
Ln 29, Col 25 Spaces: 2 UTF-8 CRLF Dart Go Live Prettier
Search
ENG IN
06:10 24-01-2024