

PROGRAMMING FUNDAMENTAL

LAB TASK

QUESTION 1

The screenshot shows an IDE with the following components:

- Editor:** Displays the source code for `la 10.cpp`. The code includes `<iostream>`, uses the `std` namespace, and defines a `displayTable` function that prints a multiplication table for a given number. The `main` function prompts the user for a number and calls `displayTable`.
- Console:** Shows the program's output. It prompts the user to enter a number, and the user has entered `5`. The program then displays the multiplication table for 5, from `5 x 1 = 5` to `5 x 12 = 60`. It also shows the process exit message: "Process exited after 2.451 seconds with return value 0".
- Compiler Log:** Shows the compilation details, including the output filename `C:\Users\Warraich Computer\OneDrive\Documents\la 10.exe`, the output size (3.02273654937744 MiB), and the compilation time (2.16s).
- Status Bar:** Displays the current cursor position (Line: 16, Col: 16) and other statistics (23 Sel, 0 Lines, 19 Length, 408 Insert, Done parsing in 1.312 seconds).

QUESTION 2

```
#include <iostream>
using namespace std;
bool isPrime(int num)
{
    if (num <= 1)
        return false;
    for (int i = 2; i * i <= num; i++)
    {
        if (num % i == 0)
            return false;
    }
    return true;
}

int main()
{
    int number;
    cout << "Enter a number to check if it is prime: ";
    cin >> number;
    if (isPrime(number))
        cout << number << " is a prime number." << endl;
    else
        cout << number << " is not a prime number." << endl;
    return 0;
}
```

Enter a number to check if it is prime: 8
8 is not a prime number.

Process exited after 1.63 seconds with return value 0
Press any key to continue . . .

Output Filename: C:\Users\Warraich Computer\OneDrive\Documents\la 10.exe
Output Size: 3.02272510528564 MiB
Compilation Time: 0.75s

Question 3

```
#include <iostream>
using namespace std;
double mean(double a, double b, double c)
{
    return (a + b + c) / 3.0;
}

int main()
{
    double num1, num2, num3;
    cout << "Enter three numbers to calculate their arithmetic mean: ";
    cin >> num1 >> num2 >> num3;
    double result = mean(num1, num2, num3);
    cout << "The arithmetic mean of " << num1 << ", " << num2 << ", and " << num3 << " is: " << result << endl;
    return 0;
}
```

Enter three numbers to calculate their arithmetic mean: 4 6 8
The arithmetic mean of 4, 6, and 8 is: 6

Process exited after 5.593 seconds with return value 0
Press any key to continue . . .

QUESTION 4

C:\Users\Warrach Computer\OneDrive\Documents\la 10.cpp - [Executing] - Embarcadero Dev-C++ 6.3

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

Project C

la 10.cpp x la 10.cpp x

```
1 #include <iostream>
2 using namespace std;
3 void printTempOpinion(int temp)
4 {
5     if (temp < 10)
6     {
7         cout << "Cold" << endl;
8     } else if (temp >= 20 && temp <= 30)
9     {
10        cout << "OK" << endl;
11    } else if (temp > 30)
12    {
13        cout << "Hot" << endl;
14    }
15 }
16
17 int main()
18 {
19     int temperature;
20     cout << "Enter the temperature: ";
21     cin >> temperature;
22     printTempOpinion(temperature);
23     return 0;
24 }
25
```

Compiler Resources Compile Log Debug Find Results Console

Abort Compilation

Shorten compiler path

Output Filename: C:\Users\Warrach Computer\OneDrive\Documents\la 10.exe
Output Size: 3.02274417877197 MiB
Compilation Time: 0.77s

C:\Users\Warrach Computer\OneDrive\Documents\la 10.exe

Enter the temperature: 30
OK

Process exited after 2.984 seconds with return value 0
Press any key to continue . . .

Line: 18 Col: 1 Sel: 0 Lines: 25 Length: 448 Insert Done parsing in 0.016 seconds

QUESTION 5

C:\Users\Warrach Computer\OneDrive\Documents\la 10.cpp - [Executing] - Embarcadero Dev-C++ 6.3

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

Project C

la 10.cpp x la 10.cpp x la 10.cpp x

```
1 #include <iostream>
2 using namespace std;
3 void fibonacci(int n)
4 {
5     int a = 0, b = 1;
6     int next;
7     for (int i = 1; i <= n; i++)
8     {
9         cout << a << " ";
10        next = a + b;
11        a = b;
12        b = next;
13    }
14    cout << endl;
15 }
16
17 int main()
18 {
19     int n;
20     cout << "Enter the number of terms in the Fibonacci series: ";
21     cin >> n;
22     fibonacci(n);
23     return 0;
24 }
25
```

Compiler Resources Compile Log Debug Find Results Console Close

Abort Compilation

Shorten compiler path

Output Filename: C:\Users\Warrach Computer\OneDrive\Documents\la 10.exe
Output Size: 3.02272891998291 MiB
Compilation Time: 0.75s

C:\Users\Warrach Computer\OneDrive\Documents\la 10.exe

Enter the number of terms in the Fibonacci series: 17
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987

Process exited after 2.595 seconds with return value 0
Press any key to continue . . .

Line: 18 Col: 1 Sel: 0 Lines: 25 Length: 411 Insert Done parsing in 0.016 seconds

Question 6

The screenshot shows the Embarcadero Dev-C++ 6.3 IDE. The main window displays a C++ source file named `la 10.cpp`. The code defines a function `printPattern` that prints a pattern of asterisks based on the number of rows `n` entered by the user. The `main` function prompts the user to enter the number of rows, reads the input, and calls `printPattern`.

```
1 #include <iostream>
2 using namespace std;
3 void printPattern(int n)
4 {
5     for (int i = 1; i <= n; i++)
6     {
7         for (int j = 1; j <= i; j++)
8         {
9             cout << " * ";
10        }
11        cout << endl;
12    }
13 }
14
15 int main()
16 {
17     int n;
18     cout << "Enter the number of rows for the pattern: ";
19     cin >> n;
20     printPattern(n);
21     return 0;
22 }
```

The console window on the right shows the output of the program. It displays the prompt "Enter the number of rows for the pattern: 8", followed by the pattern of asterisks for 8 rows. The pattern is as follows:

```
 *
 * *
 * * *
 * * * *
 * * * * *
 * * * * *
 * * * * *
 * * * * *
```

Below the pattern, the console shows the message "Process exited after 2.569 seconds with return value 0" and "Press any key to continue . . .".

The bottom status bar shows the compiler output: "Output Filename: C:\Users\Warraich Computer\OneDrive\Documents\la 10.exe", "Output Size: 3.02273654937744 MiB", and "Compilation Time: 0.77s".