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Roll No. - 12

Assignment 2

1. Write a program to check whether a number is prime or not.

```
#include<iostream>
using namespace std;

int main()
{
    int n, i, var = 0;

    cout << "Enter any number : "; cin >> n;

    for (i = 1; i <= n; i++)
    {
        if (n % i == 0)
        {
            var++;
        }
    }
    if (var == 2)
    {
        cout << "It is a Prime number" << endl;
    }
    else
    {
        cout << "It is not a Prime number" << endl;
    }
    return 0;
}
```

Welcome

test.cpp ×

test.cpp > main()

```
4  int main()
5  {
6
7      int n, i, var = 0;
8
9      cout << "Enter any number : "; cin >> n;
10
11     for (i = 1; i <= n; i++)
12     {
13         if (n % i == 0)
14         {
15             var++;
16         }
17     }
18     if (var == 2)
19     {
20         cout << "It is a Prime number" << endl;
21     }
22     else
```

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

sagartembhe@Sagars-MacBook-Air Desktop % g++ test.cpp

sagartembhe@Sagars-MacBook-Air Desktop % ./a.out

Enter any number : 23

It is a Prime number

○ sagartembhe@Sagars-MacBook-Air Desktop % █

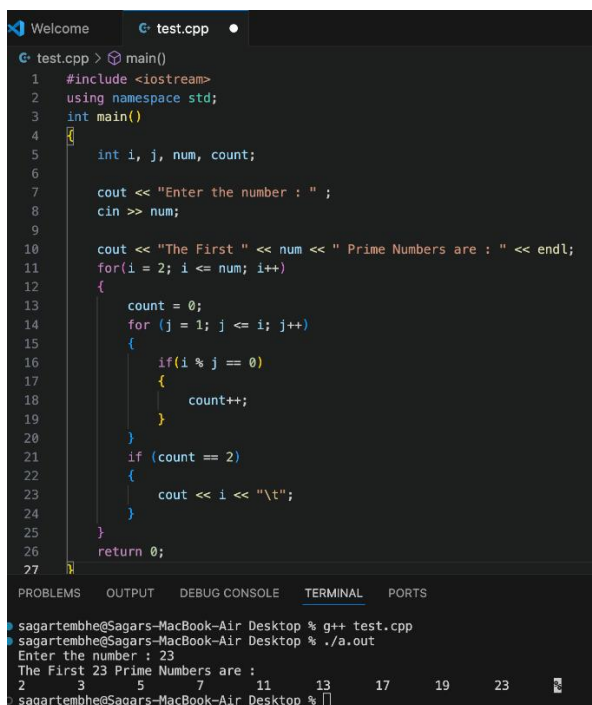
2. Write a program to generate first N prime numbers. Accept N from user.

```
#include <iostream>
using namespace std;
int main()
{
    int i, j, num, count;

    cout << "Enter the number : ";
    cin >> num;

    cout << "The First " << num << " Prime Numbers are : " << endl;
    for(i = 2; i <= num; i++)
    {
        count = 0;
        for (j = 1; j <= i; j++)
        {
            if(i % j == 0)
            {
                count++;
            }
        }
        if (count == 2)
        {
            cout << i << endl;
        }
    }
}

return 0;
}
```



The screenshot shows a C++ IDE with a file named 'test.cpp'. The code is identical to the one provided in the previous block. The 'TERMINAL' tab is active, showing the command 'g++ test.cpp' and the execution of the program. The user entered '23' for the number of prime numbers to generate. The output displays the first 23 prime numbers: 2, 3, 5, 7, 11, 13, 17, 19, and 23.

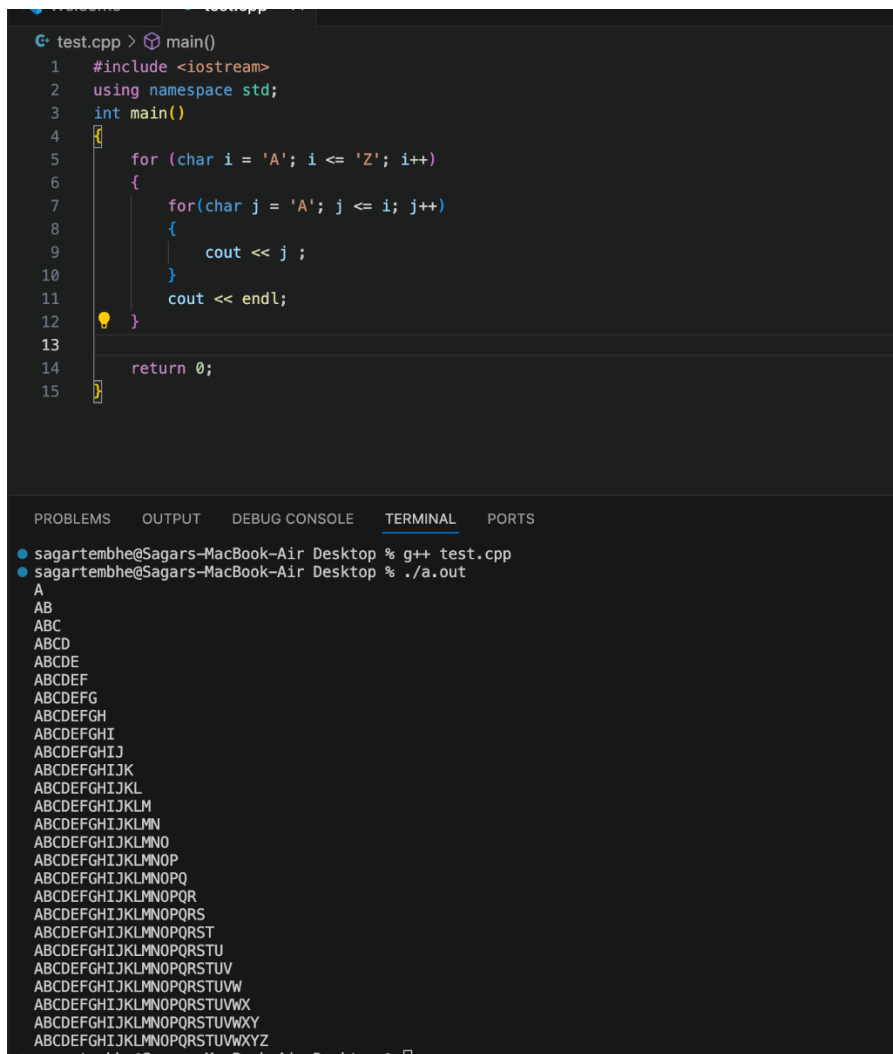
```
Welcome  test.cpp
G: test.cpp > main()
1  #include <iostream>
2  using namespace std;
3  int main()
4
5      int i, j, num, count;
6
7      cout << "Enter the number : " ;
8      cin >> num;
9
10     cout << "The First " << num << " Prime Numbers are : " << endl;
11     for(i = 2; i <= num; i++)
12     {
13         count = 0;
14         for (j = 1; j <= i; j++)
15         {
16             if(i % j == 0)
17             {
18                 count++;
19             }
20         }
21         if (count == 2)
22         {
23             cout << i << "\t";
24         }
25     }
26     return 0;
27
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
sagartembhe@Sagars-MacBook-Air Desktop % g++ test.cpp
sagartembhe@Sagars-MacBook-Air Desktop % ./a.out
Enter the number : 23
The First 23 Prime Numbers are :
2   3   5   7   11  13   17  19   23
```

3. Write a program to generate following pyramid

A
AB
ABC
..... A.....Z

```
#include <iostream>
using namespace std;
int main()
{
    for (char i = 'A'; i <= 'Z'; i++)
    {
        for(char j = 'A'; j <= i; j++)
        {
            cout << j;
        }
        cout << endl;
    }

    return 0;
}
```



The screenshot shows a C++ IDE with a code editor and a terminal. The code editor displays the following code:

```
test.cpp > main()
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5      for (char i = 'A'; i <= 'Z'; i++)
6      {
7          for(char j = 'A'; j <= i; j++)
8          {
9              cout << j ;
10             }
11             cout << endl;
12         }
13
14         return 0;
15     }
```

The terminal shows the output of the program:

```
sagartembhe@Sagars-MacBook-Air Desktop % g++ test.cpp
sagartembhe@Sagars-MacBook-Air Desktop % ./a.out
A
AB
ABC
ABCD
ABCDE
ABCDEF
ABCDEFG
ABCDEFGH
ABCDEFGH
I
ABCDEFGHI
ABCDEFGHIJ
ABCDEFGHIJK
ABCDEFGHIJKL
ABCDEFGHIJKLM
ABCDEFGHIJKLMN
ABCDEFGHIJKLMNO
ABCDEFGHIJKLMNOP
ABCDEFGHIJKLMNOPQ
ABCDEFGHIJKLMNOPQR
ABCDEFGHIJKLMNOPQRS
ABCDEFGHIJKLMNOPQRST
ABCDEFGHIJKLMNOPQRSTU
ABCDEFGHIJKLMNOPQRSTUV
ABCDEFGHIJKLMNOPQRSTUVW
ABCDEFGHIJKLMNOPQRSTUVWX
ABCDEFGHIJKLMNOPQRSTUVWXY
ABCDEFGHIJKLMNOPQRSTUVWXYZ
```

4. Write a menu driven program to perform mathematical operations on two numbers.

1. Add

2. Sub

3. Mul

4. Div

5. Exitmenu :

accept the menu option and numbers form user.

```
#include <iostream>
using namespace std;

int main() {
    int choice;
    float num1, num2;

    do {
        cout << "Menu:" << endl;
        cout << "1. Add" << endl;
        cout << "2. Subtract" << endl;
        cout << "3. Multiply" << endl;
        cout << "4. Divide" << endl;
        cout << "5. Exit" << endl;
        cout << "Enter your choice: ";
        cin >> choice;

        if (choice == 5) break;
        cout << "Enter two numbers: ";
        cin >> num1 >> num2;

        switch (choice) {
            case 1:
                cout << "Result: " << num1 + num2 << endl;
                break;
            case 2:
                cout << "Result: " << num1 - num2 << endl;
                break;
            case 3:
                cout << "Result: " << num1 * num2 << endl;
                break;
            case 4:
                if (num2 != 0)
                    cout << "Result: " << num1 / num2 << endl;
                else
                    cout << "Error! Division by zero." << endl;
                break;
            default:
                cout << "Invalid choice!" << endl;
        }
    } while (choice != 5);

    cout << "Exiting the program..." << endl;
    return 0;
}
```

```
Menu:
1. Add
2. Subtract
3. Multiply
4. Divide
5. Exit
Enter your choice: 1
Enter two numbers: 20
40
Result: 60
Menu:
1. Add
2. Subtract
3. Multiply
4. Divide
5. Exit
Enter your choice: 2
Enter two numbers: 70-30
Result: 100
Menu:
1. Add
2. Subtract
3. Multiply
4. Divide
5. Exit
Enter your choice: 3
Enter two numbers: 14
3
Result: 42
Menu:
1. Add
2. Subtract
3. Multiply
4. Divide
5. Exit
Enter your choice: 4
Enter two numbers: 200
10
Result: 20
Menu:
1. Add
2. Subtract
3. Multiply
4. Divide
5. Exit
Enter your choice: 
```

5. Generate following pyramid , accept the level from the user as input

1

1 2

1 2 3

..... 1.....N

where N is the level accepted as input

```
#include <iostream>
using namespace std;
int main()
{
    int levels ;

    cout << "Enter the number of levels : " ;
    cin >> levels;

    for (int i = 1; i <= levels; i++)
    {
        for(int j = 1; j <= i; j++)
        {
            cout << j << " ";
        }
        cout << endl;
    }

    return 0;
}
```



The screenshot shows a Visual Studio Code editor with a file named `test.cpp`. The code is a C++ program that generates a pyramid of numbers. The code is as follows:

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

The output of the program is shown in the terminal window. The user has entered 10 as the number of levels, and the program has generated the following pyramid:

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
1 2 3 4 5 6 7
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9 10
```