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ASSIGNMENT : FOP

TASK 1

```
include <iostream>
```

```
// Function to calculate HCF (GCD) of two numbers
```

```
int calculateHCF(int a, int b) {  
    if (b == 0) {  
        return a;  
    }  
    return calculateHCF(b, a % b);  
}
```

```
// Function to calculate LCM using HCF
```

```
int calculateLCM(int a, int b) {  
    int hcf = calculateHCF(a, b);  
    int lcm = (a * b) / hcf;  
    return lcm;  
}
```

```
int main() {
```

```
    int num1, num2;
```

```
    std::cout << "Enter two numbers: ";
```

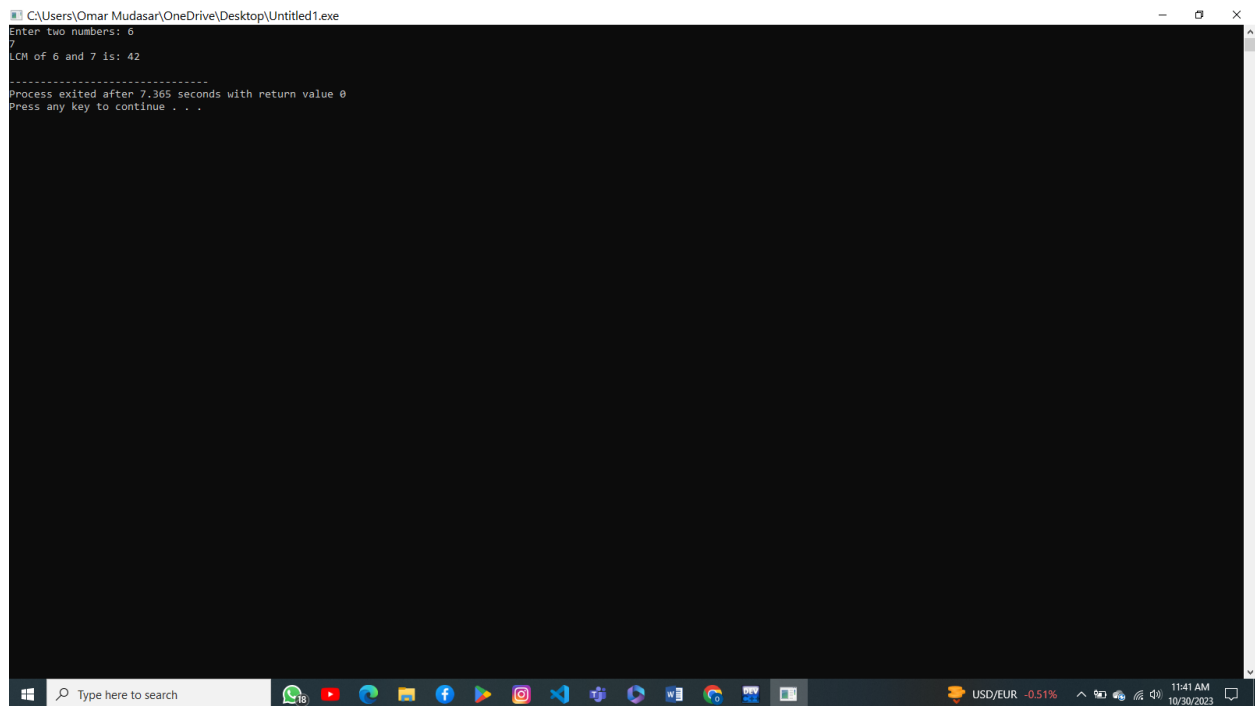
```
    std::cin >> num1 >> num2;
```

```
    int lcm = calculateLCM(num1, num2);
```

```
    std::cout << "LCM of " << num1 << " and " << num2 << " is: " << lcm << std::endl;
```

```
    return 0;
```

}



A screenshot of a Windows command prompt window. The title bar reads "C:\Users\Omar Mudasan\OneDrive\Desktop\Untitled1.exe". The window contains the following text: "Enter two numbers: 6", "7", "LCM of 6 and 7 is: 42", followed by a separator line "-----". Below the separator, it says "Process exited after 7.365 seconds with return value 0" and "Press any key to continue . . .". The Windows taskbar is visible at the bottom, showing the search bar, various application icons, and the system clock indicating 11:41 AM on 10/30/2023.

Task 2

```
#include <iostream>
```

```
int main() {
```

```
    int n, a, d;
```

```
    // Input the number of terms, first term, and common difference
```

```
    std::cout << "Enter the number of terms: ";
```

```
    std::cin >> n;
```

```
    std::cout << "Enter the first term (a): ";
```

```
    std::cin >> a;
```

```
    std::cout << "Enter the common difference (d): ";
```

```
    std::cin >> d;
```

```

// Calculate the sum of the AP series

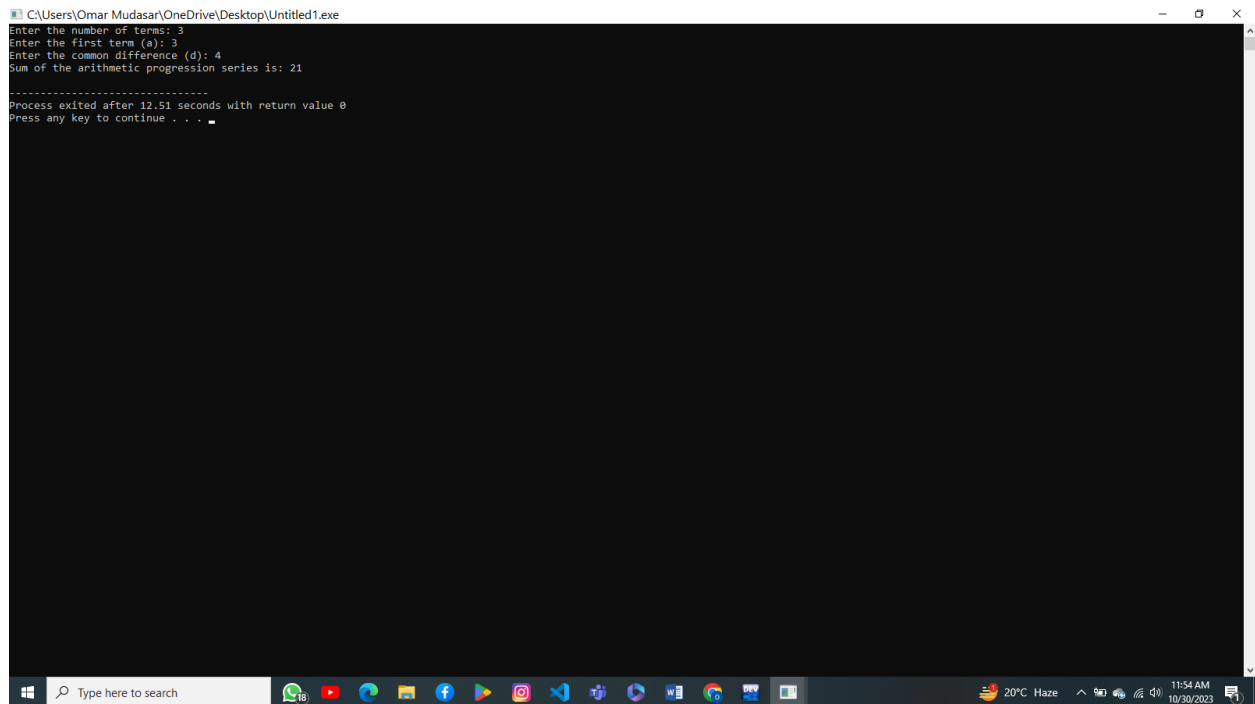
int sum = (n * (2 * a + (n - 1) * d)) / 2;

// Display the sum

std::cout << "Sum of the arithmetic progression series is: " << sum << std::endl;

return 0;
}

```



```

C:\Users\Omar Mudasan\OneDrive\Desktop\Untitled1.exe
Enter the number of terms: 3
Enter the first term (a): 3
Enter the common difference (d): 4
Sum of the arithmetic progression series is: 21
-----
Process exited after 12.51 seconds with return value 0
Press any key to continue . . .

```

Task 3

```
include <iostream>
```

```

int main() {

    int n;

    std::cout << "Enter the number of rows for the diamond (must be an odd number): ";

    std::cin >> n;

```

```
if (n % 2 == 0) {  
    std::cout << "Please enter an odd number for the diamond pattern." << std::endl;  
    return 1;  
}
```

```
for (int i = 1; i <= n; i += 2) {  
    for (int j = 0; j < (n - i) / 2; j++) {  
        std::cout << " ";  
    }
```

```
    for (int j = 0; j < i; j++) {  
        std::cout << "*";  
    }
```

```
    std::cout << std::endl;  
}
```

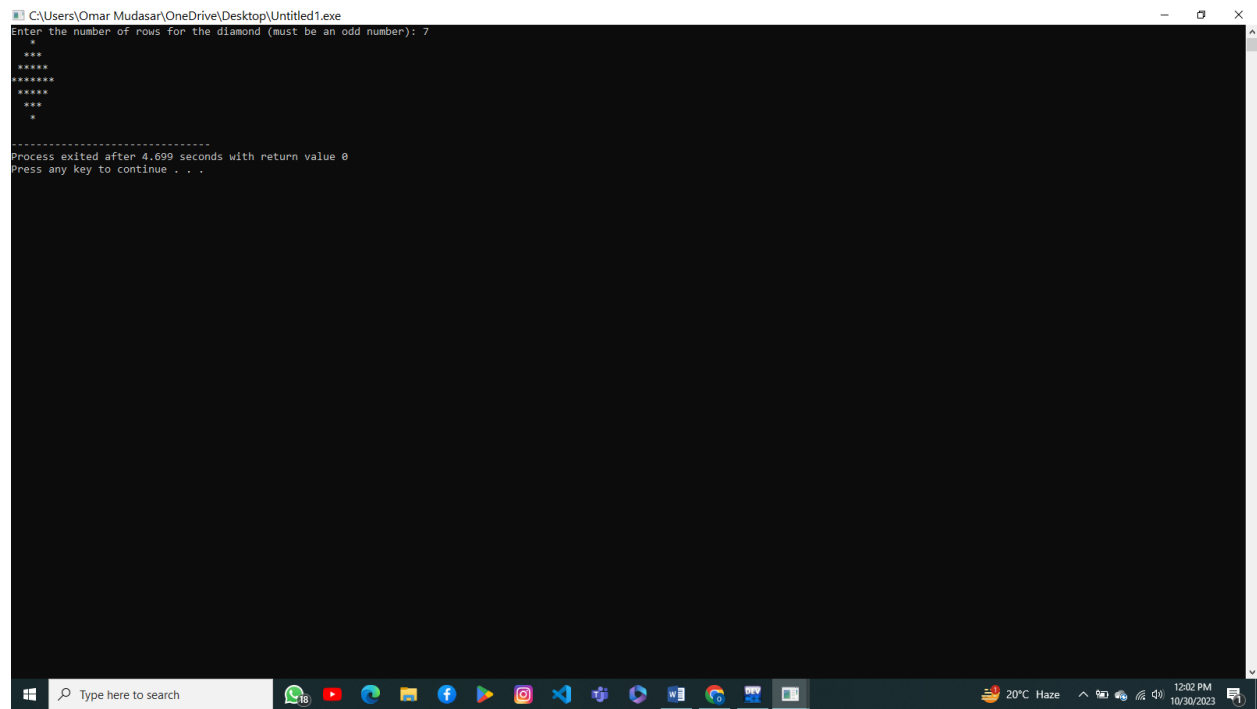
```
for (int i = n - 2; i >= 1; i -= 2) {  
    for (int j = 0; j < (n - i) / 2; j++) {  
        std::cout << " ";  
    }
```

```
    for (int j = 0; j < i; j++) {  
        std::cout << "*";  
    }
```

```
    std::cout << std::endl;  
}
```

```
return 0;
```

```
}
```



```
C:\Users\Omar Mudasan\OneDrive\Desktop\Untitled1.exe
Enter the number of rows for the diamond (must be an odd number): 7
*
***
*****
*****
*****
***
*

Process exited after 4.699 seconds with return value 0
Press any key to continue . . .
```