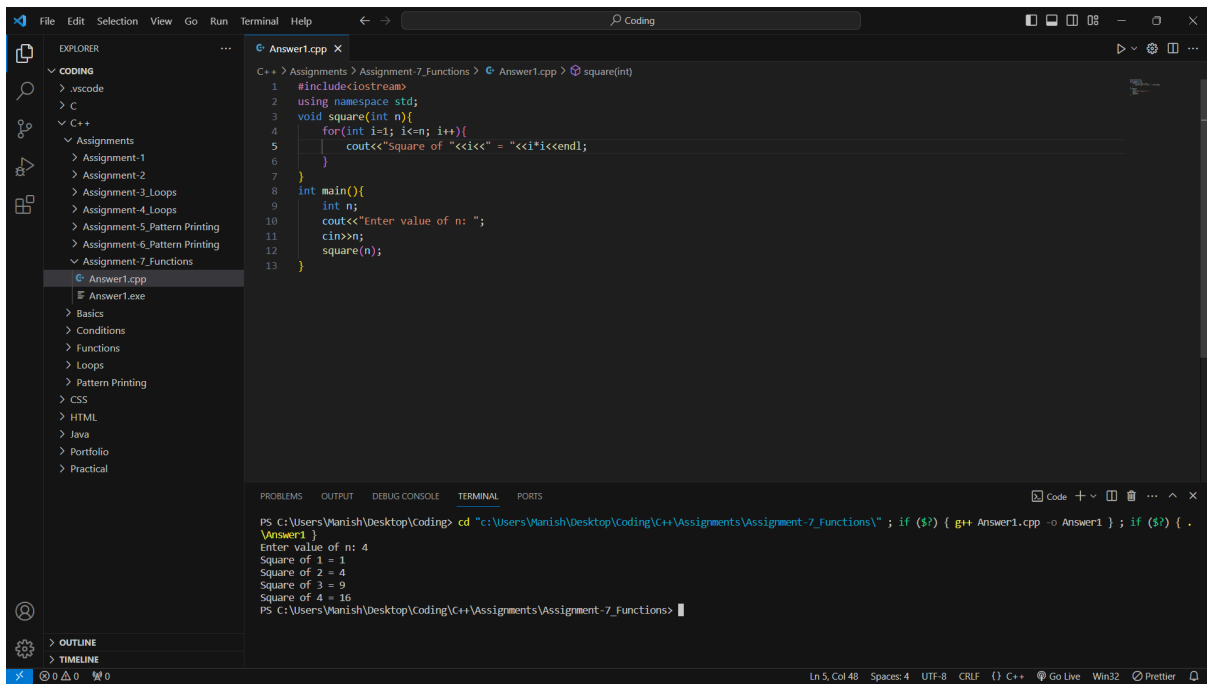


Assignment (Functions)

Q1. Write a function to print squares of first n natural numbers, taking n as argument to the function.

Answer:



The screenshot shows a Visual Studio Code editor with a C++ project. The Explorer panel on the left shows the project structure, including a folder for 'Assignment-7_Functions' containing 'Answer1.cpp' and 'Answer1.exe'. The main editor displays the code for 'Answer1.cpp':

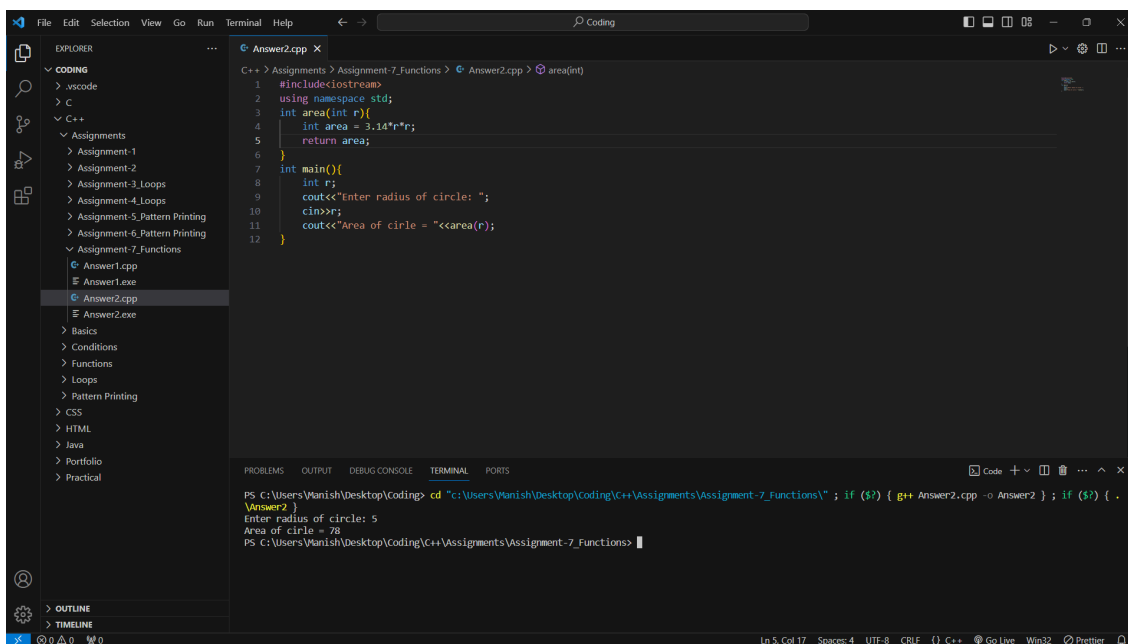
```
1 #include<iostream>
2 using namespace std;
3 void square(int n){
4     for(int i=1; i<=n; i++){
5         cout<<"Square of "<<i<<" = "<<i*i<<endl;
6     }
7 }
8 int main(){
9     int n;
10    cout<<"Enter value of n: ";
11    cin>>n;
12    square(n);
13 }
```

The TERMINAL panel at the bottom shows the command prompt output:

```
PS C:\Users\Manish\Desktop\Coding> cd "C:\Users\Manish\Desktop\Coding\C++\Assignments\Assignment-7_Functions"; if ($?) { g++ Answer1.cpp -o Answer1 }; if ($?) { .\Answer1 }
Enter value of n: 4
Square of 1 = 1
Square of 2 = 4
Square of 3 = 9
Square of 4 = 16
PS C:\Users\Manish\Desktop\Coding\C++\Assignments\Assignment-7_Functions>
```

Q2. Write a function that takes the radius of a circle as an argument and returns its area.

Answer:



The screenshot shows a Visual Studio Code editor with a C++ project. The Explorer panel on the left shows the project structure, including a folder for 'Assignment-7_Functions' containing 'Answer1.cpp', 'Answer1.exe', 'Answer2.cpp', and 'Answer2.exe'. The main editor displays the code for 'Answer2.cpp':

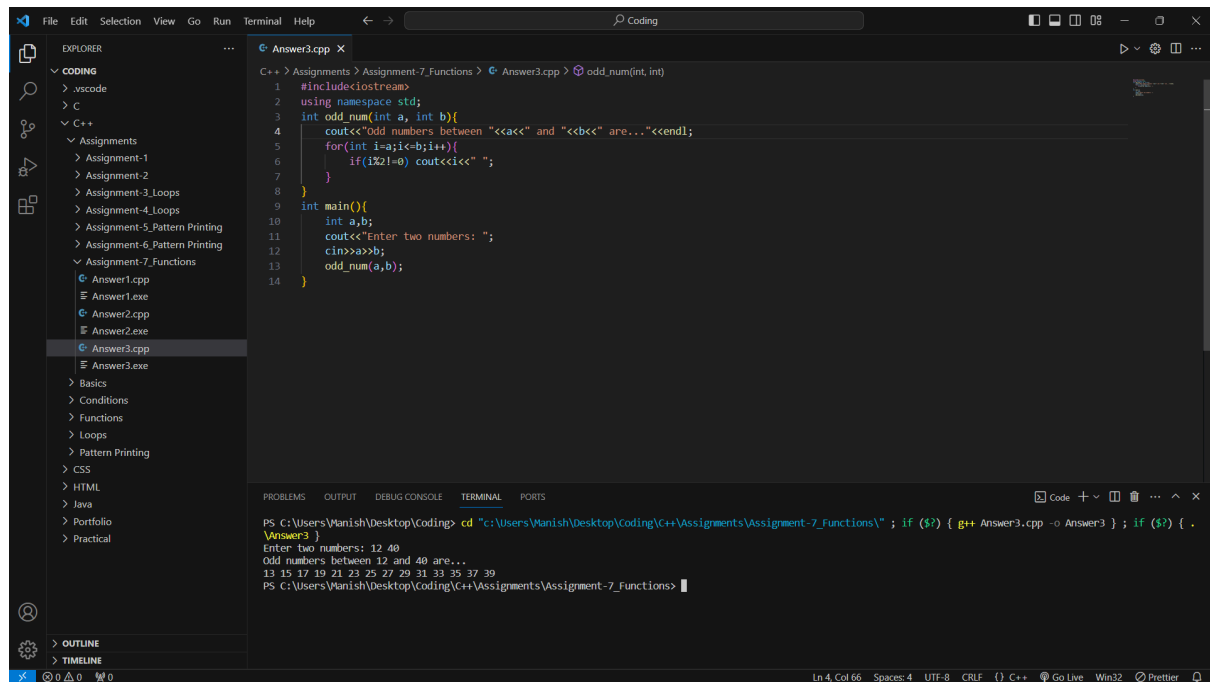
```
1 #include<iostream>
2 using namespace std;
3 int area(int r){
4     int area = 3.14*r*r;
5     return area;
6 }
7 int main(){
8     int r;
9     cout<<"Enter radius of circle: ";
10    cin>>r;
11    cout<<"Area of circle = "<<area(r);
12 }
```

The TERMINAL panel at the bottom shows the command prompt output:

```
PS C:\Users\Manish\Desktop\Coding> cd "C:\Users\Manish\Desktop\Coding\C++\Assignments\Assignment-7_Functions"; if ($?) { g++ Answer2.cpp -o Answer2 }; if ($?) { .\Answer2 }
Enter radius of circle: 5
Area of circle = 78
PS C:\Users\Manish\Desktop\Coding\C++\Assignments\Assignment-7_Functions>
```

Q3. Given two numbers a and b, write a function to print all odd numbers between them.

Answer:



The screenshot shows a Visual Studio Code editor with a C++ project. The Explorer panel on the left shows the file structure, including 'Answer3.cpp'. The main editor window displays the code for 'Answer3.cpp'.

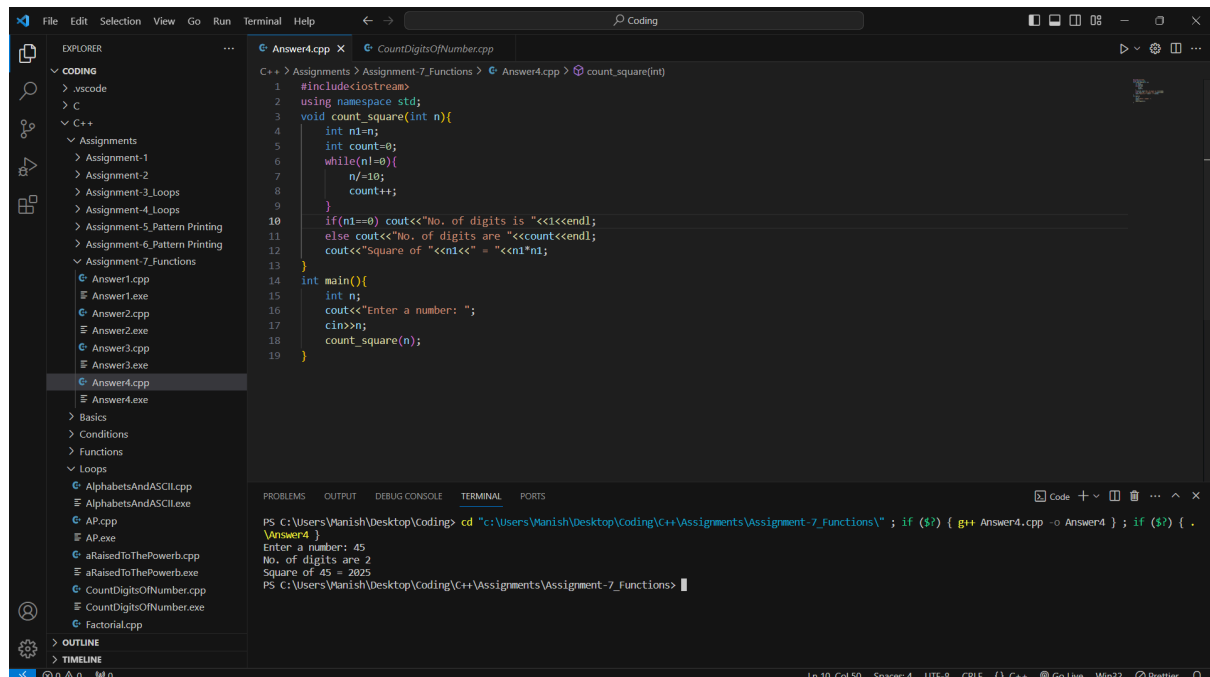
```
C++ > Assignments > Assignment-7_Functions > Answer3.cpp > odd_num(int,int)
1 #include<iostream>
2 using namespace std;
3 int odd_num(int a, int b){
4     cout<<"Odd numbers between "<<a<<" and "<<b<<" are..."<<endl;
5     for(int i=a;i<=b;i++){
6         if(i%2!=0) cout<<i<<" ";
7     }
8 }
9 int main(){
10     int a,b;
11     cout<<"Enter two numbers: ";
12     cin>>a>>b;
13     odd_num(a,b);
14 }
```

The terminal at the bottom shows the command to compile and run the program, and the output of the program.

```
PS C:\Users\Manish\Desktop\Coding> cd "C:\Users\Manish\Desktop\Coding\C++\Assignments\Assignment-7_Functions\"; if ($?) { g++ Answer3.cpp -o Answer3 }; if ($?) { .\Answer3 }
Enter two numbers: 12 40
Odd numbers between 12 and 40 are...
13 15 17 19 21 23 25 27 29 31 33 35 37 39
PS C:\Users\Manish\Desktop\Coding\C++\Assignments\Assignment-7_Functions>
```

Q4. Write a function to count the number of digits in a number and then print the square of this number.

Answer:



The screenshot shows a Visual Studio Code editor with a C++ project. The Explorer panel on the left shows the file structure, including 'Answer4.cpp'. The main editor window displays the code for 'Answer4.cpp'.

```
C++ > Assignments > Assignment-7_Functions > Answer4.cpp > count_square(int)
1 #include<iostream>
2 using namespace std;
3 void count_square(int n){
4     int n1=n;
5     int count=0;
6     while(n1!=0){
7         n/=10;
8         count++;
9     }
10    if(n1==0) cout<<"No. of digits is "<<count<<endl;
11    else cout<<"No. of digits are "<<count<<endl;
12    cout<<"Square of "<<n1<<" = "<<n1*n1;
13 }
14 int main(){
15     int n;
16     cout<<"Enter a number: ";
17     cin>>n;
18     count_square(n);
19 }
```

The terminal at the bottom shows the command to compile and run the program, and the output of the program.

```
PS C:\Users\Manish\Desktop\Coding> cd "C:\Users\Manish\Desktop\Coding\C++\Assignments\Assignment-7_Functions\"; if ($?) { g++ Answer4.cpp -o Answer4 }; if ($?) { .\Answer4 }
Enter a number: 45
No. of digits are 2
Square of 45 = 2025
PS C:\Users\Manish\Desktop\Coding\C++\Assignments\Assignment-7_Functions>
```

Q5. The minimum number of functions present in any C++ program is:

1. 0
2. 1
3. 2
4. Infinite

Answer: 1, because “int main()” is also a function.

Q6: State True and False:

1. A function may be called more than once from any other function
2. It is necessary for a function to return some value.

Answer:

1. True
2. False

Q7: Explore:

Can the same function name be used for different functions without any conflict?

Answer: Yes, these are called overloaded functions.