Assignment Solutions | Functions | Week 4

1. Write a function to print squares of n natural numbers.

Solution:

```
#include <bits/stdc++.h>

int square(int num) {
    return num * num;
}

void firstNSquares(int n) {
    for(int i = 1; i <= n; ++i) {
        cout << i << " " << square(i) << endl;
    }
}

int main() {

    int n;
    cin >> n;
    firstNSquares(n);

    return 0;
}
```

2. Write a function to take the radius of a circle as an argument and return its area.

Solution:

```
#include <bits/stdc++.h>

double area(int radius) {
    return 3.14 * radius * radius;
}

int main() {

    int radius;
    cin >> radius;
    cout << "Area of the circle is: " << area(radius) << " units square";

    return 0;
}
```

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

Solution:

```
#include <bits/stdc++.h>

void printOddNumbers(int a, int b) {
    if(a > b) {
        printOddNumbers(b, a);
        return;
    }

    for(int i = a; i <= b; ++i) {
        if(i % 2 != 0) {
            cout << i << " ";
        }
    }
    cout << endl;
}

int main() {

    int a, b;
    cin >> a >> b;

    printOddNumbers(a, b);

    return 0;
}
```

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

Solution:

```cpp
#include <bits/stdc++.h>

int square(int n) {
    return n * n;
}

int countNumberOfDigits(int num) {
    int ans = 0;
    while(num > 0) {
        ans++;
        num /= 10;
    }
    return ans;
}

int main() {

    int num;
    cin >> num;

    int numberOfDigits = countNumberOfDigits(num);

    cout << square(numberOfDigits) << endl;

    return 0;
}
```

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

Solution:

1

`The main function itself.`

6. State True or False

A function may be called more than once from any other function.

Solution :

`True: We can call as many times a function as we want.`

It is necessary for a function to return a value

Solution :

`False: A function can have a void return type, which means return nothing. Although it has to be clearly specified that the function is of void return type.`

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

Solution :

The same function name can be used for different functions without any conflict if and only if they either have different data types for arguments or different number of arguments. Same function names cannot be used if functions differ only by their return type because the compiler would not then know which function is to be used.
