

Lecture Slide Questions:

**Practice Question 01:** What is the output of the following C++ program?

```
1  #include <iostream>
2  using namespace std;
3  int main () {
4      int i = 0;
5
6      while(i<=20)
7      {
8          cout<<i<<endl;
9          i=i+5;
10     }
11
12     return 0;
13 }
```

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5      int i=15;
6      while(i>=1)
7      {
8          i = i/2;
9          cout<<i<<endl;
10     }
11     return 0;
12 }
```

**Practice Question 02:** Write a C++ program to take a number from the user and print the pattern as follows:

**Sample Output:**

```
Enter number: 3
3 2 1
```

**Practice Question 03:**

Write a C++ program to prompt the user to enter a set of numbers (only positive numbers), one at a time. User enters a zero to indicate that he has completed entering numbers. Then, the program should display

- the count of odd numbers entered.
- the count of even numbers entered.

**Practice Question 04 & 05:** What is the output of the following C++ program?

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5      int x=0;
6
7      for(int i=1;i<10;i*=2)
8      {
9          x++;
10         cout<<x;
11     }
12     cout<<x;
13
14     return 0;
15 }
```

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5      int i = 0, x = 0;
6      do
7      {
8          if(i % 5 == 0)
9          {
10             cout<<x;
11             x++;
12         }
13         ++i;
14     }while(i<6);
15     cout<<x;
16
17     return 0;
18 }
19
20 }
```

**Practice Question 06:** Write a C++ program to read a number and print a pattern as follows:

Use the while, do-while and for loops to write the answer.

**Sample Output:**

Enter number: 3

Output: @@@

**Practice Question 07 :** What is the output of the following C++ program?

```
#include <iostream>
using namespace std;
int main()
{
    for(int i=1;i<=2;i++)
    {
        for(int j=i;j<=2;j++)
            cout<<i<<'@'<<endl;
    }
}
```

**Practice Question 08 :** What is the output of the following C++ program?

```
1  #include <iostream>
2  using namespace std;
3
4  int main () {
5      int a = 10;
6
7      do {
8          cout << "value of a: " << a << endl;
9          a = a + 1;
10         if( a > 15) {
11             break;
12         }
13     } while( a < 20 );
14
15     return 0;
16 }
```

**Practice Question 09:** What is the output of the following C++ program?

```
1  #include <iostream>
2  using namespace std;
3
4  int main(){
5
6      for(int i=1;i<=5;i++)
7      {
8          if(i==3)
9          {
10             continue;
11         }
12         cout<<i<<endl;
13     }
14
15     return 0;
16 }
```

```
1  #include <iostream>
2  using namespace std;
3
4  int main(){
5
6      for(int i=1;i<=5;i++)
7      {
8          if(i==3)
9          {
10             continue;
11         }
12         cout<<i<<endl;
13     }
14
15     return 0;
16 }
```

```
1  #include <iostream>
2  using namespace std;
3
4  int main(){
5
6      for(int i=1;i<=6;i++)
7      {
8          if(i%2==0)
9          {
10             continue;
11         }
12         cout<<i<<endl;
13     }
14
15     return 0;
16 }
```

1. Write a separate C++ program to read a number from the user and print a sequence of numbers (up to that number).

Input	20
Pattern 01	1 8
Pattern 02	1 4 9 16
Pattern 03	1 3 6 10 15
Pattern 04	3 6 9 12 15 18
Pattern 05	2 5 10 17

2. Write a C++ program to read a number and print factorial of the given number.

**Sample Output:**

```
Enter number: 4
Factorial is: 24
```

The factorial of a nonnegative integer  $n$  is written  $n!$  and is defined as follows:

$$n! = n * (n - 1) * (n - 2) * \dots * 1$$

and

$$n! = 1 \text{ (for } n = 0\text{)}$$

For example,  $5! = 5 * 4 * 3 * 2 * 1$ , which is 120

3. Write a C++ program to requests the user to enter two integers as inputs and the print sum of odd square numbers between the given interval.

**Sample Output:**

```
Enter two integer numbers: 2 6
Sum of odd square numbers: 34
```

4. A program is required to read a number from the user and check whether that number is palindrome or not.

***Any number is said to be a palindrome if the original number and the reverse of the original number are the same.***

**Sample Output:**

```
Enter a number: 121
The reverse of the number is: 121
The number is a palindrome.
```

5. Write a C++ program to read a number from the user and print number of digits, sum of digits and product of digits.

**Sample Output:**

```
Enter number: 1134
The number of digits: 4
The sum of digits is: 9
The product of digits is: 12
```

6. Write a C++ program to input a number from the user and find the number of occurrences is in the entered number similar to the last digit.

**Sample Output:**

```
Enter number: 1323
The last digit is: 3
The number of occurrences of Last digit in given number: 2
```

7. Write a C++ program to requests the user to enter a number and print a pattern as follows:

**Sample Output:**

```
Enter number: 3
1
1 2
1 2 3
```

**Sample Output:**

```
Enter number: 3
3 3 3
2 2
1
```