# Lab session 6

## Part B/section A

## 1.

Using While Loop

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int num = 0;
while (num <= 100) {
printf("%d ", num);
num++;
}
r
eturn 0;
}
```

Using Do-While Loop

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int num = 0;
do {
printf("%d ", num);
num++;
} while (num <= 100);
r
eturn 0;
}
```

Using For Loop

```
#include <stdio.h>
#include <stdlib.h>
int main() {
for (int num = 0; num <= 100; num++) {
printf("%d ", num);
}
return 0;
}
```

## 2.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int marks[10];
int total = 0;
printf("Enter 10 marks:\n");
for (int i = 0; i < 10; i++) {
printf("Mark %d: ", i + 1);
scanf("%d", &marks[i]);
total += marks[i];
}
float average = (float)total / 10.0;
printf("Total marks: %d\n", total);
printf("Average marks: %.2f\n", average);
if (average < 50) {
printf("Fail!\n");
} else {
printf("Pass!\n");
}
return 0;
}
```

## 3.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int number, factorial = 1;
printf("Enter a number: ");
scanf("%d", &number);
if (number < 0) {
printf("Factorial is not defined for negative
numbers.\n");
return 0;
}
for (int i = number; i >= 1; i--) {
factorial *= i;
}
printf("Factorial of %d is %d\n", number, factorial);
return 0;
}
```

## 4.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int number, sum = 0;
printf("Enter a number: ");
scanf("%d", &number);
int originalNumber = number;
while (number != 0) {
int digit = number % 10;
sum += digit;
number /= 10;
}
printf("Sum of digits of %d is %d\n", originalNumber, sum);
return 0;
}
```

## 5.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int number, reversedNumber = 0;
printf("Enter a number: ");
scanf("%d", &number);
int originalNumber = number;
do {
int digit = number % 10;
reversedNumber = (reversedNumber * 10) + digit;
number /= 10;
} while (number != 0);
printf("Original number: %d\n", originalNumber);
printf("Reversed number: %d\n", reversedNumber);
return 0;
}
```

## 6.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int base, exponent;
long long result = 1;
printf("Enter the base: ");
```

```
scanf("%d", &base);
printf("Enter the exponent: ");
scanf("%d", &exponent);
if (exponent < 0) {
printf("Exponent must be non-negative.\n");
return 0;
}
for (int i = 0; i < exponent; i++) {
result *= base;
}
printf("%d raised to the power of %d is %lld\n", base, exponent, resu
lt);
return 0;
}
```

## 7.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int num1 = 0, num2 = 1, nextNum;
printf("First 10 numbers of the Fibonacci sequence:\n");
printf("%d ", num1);
printf("%d ", num2);
for (int i = 3; i <= 10; i++) {
nextNum = num1 + num2;
printf("%d ", nextNum);
num1 = num2;
num2 = nextNum;
}
printf("\n");
return 0;
}
```