

Lab session 9

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
    return 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;
    }
```