Task-1

J.Sreekar Sarma
VU21CSEN0300040

1. Write a C program to calculate sum of digits of a number.

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

```
Writing sumOfDigits.c
```

```
!gcc -o sod sumOfDigits.c
```

```
!./sod
```

```
Enter a number: 1234
Sum of digits = 10
```

2. Write a C program to find first and last digit of a number.

```
%%writefile firstAndLast.c
#include <stdio.h>
int main() {
    int num, last, first;
    printf("Enter a number: ");
    scanf("%d", &num);
    last = num % 10;
    while (num >= 10) {
        num /= 10;
    }
    first = num;
    printf("First digit = %d, Last digit = %d\n", first, last);
    return 0;
}
```

```
Writing firstAndLast.c
```

```
!gcc -o fal firstAndLast.c
```

```
!./fal
```

```
Enter a number: 15678
First digit = 1, Last digit = 8
```

3. Write a C program to find sum of first and last digit of a number.

```
%%writefile sumFaL.c
#include <stdio.h>
int main() {
    int num, last, first, sum;
    printf("Enter a number: ");
    scanf("%d", &num);
    last = num % 10;
    while (num >= 10) {
```

```
        num /= 10;
    }
    first = num;
    sum = first + last;
    printf("Sum of first and last digit = %d\n", sum);
    return 0;
}
```

```
Writing sumFaL.c
```

```
!gcc -o sfal sumFaL.c
```

```
!./sfal
```

```
Enter a number: 12345679
Sum of first and last digit = 10
```

4. Write a C program to swap first and last digits of a number.

```
%%writefile swapFaL.c
#include <stdio.h>
#include <math.h>
int main() {
    int num, first, last, digits, swapped;
    printf("Enter a number: ");
    scanf("%d", &num);
    last = num % 10;
    digits = log10(num);
    first = num / pow(10, digits);
    swapped = last * pow(10, digits) + (num % (int)pow(10, digits)) - last + first;
    printf("Number after swapping first and last digits = %d\n", swapped);
    return 0;
}
```

```
Writing swapFaL.c
```

```
!gcc swapFaL.c -o swapFaL -lm
```

```
!./swapFaL
```

```
Enter a number: 1234
Number after swapping first and last digits = 4231
```

5. Write a C program to find frequency of each digit in a given integer.

```
%%writefile digitFreq.c
#include <stdio.h>
int main() {
    int num, digit, freq[10] = {0};
    printf("Enter a number: ");
    scanf("%d", &num);
    while (num != 0) {
        digit = num % 10;
        freq[digit]++;
        num /= 10;
    }
    printf("Digit frequencies:\n");
    for (int i = 0; i < 10; i++) {
        if (freq[i] > 0) {
            printf("%d: %d times\n", i, freq[i]);
        }
    }
    return 0;
}
```

```
Writing digitFreq.c
```

```
!gcc -o df digitFreq.c
```

```
!./df
```

```
Enter a number: 1221
Digit frequencies:
1: 2 times
2: 2 times
```

6. Write a C program to enter a number and print it in words.

```
%%writefile num2word.c
#include <stdio.h>

const char *ones[] = {"", "One", "Two", "Three", "Four", "Five", "Six", "Seven", "Eight", "Nine"};
const char *teens[] = {"Ten", "Eleven", "Twelve", "Thirteen", "Fourteen", "Fifteen", "Sixteen", "Seventeen", "Eighteen'
const char *tens[] = {"", "", "Twenty", "Thirty", "Forty", "Fifty", "Sixty", "Seventy", "Eighty", "Ninety"};

void numberToWords(int num) {
    if (num == 0) {
        printf("Zero");
        return;
    }

    if (num < 0) {
        printf("Minus ");
        num = -num;
    }

    if (num >= 100) {
        printf("%s hundred ", ones[num / 100]);
        num %= 100;
    }

    if (num >= 20) {
        printf("%s", tens[num / 10]);
        if (num % 10) {
            printf("-%s", ones[num % 10]);
        }
    } else if (num >= 10) {
        printf("%s", teens[num - 10]);
    } else if (num > 0) {
        printf("%s", ones[num]);
    }
}

int main() {
    int num;

    printf("Enter a number: ");
    scanf("%d", &num);

    printf("In words: ");
    numberToWords(num);

    printf("\n");
    return 0;
}
```

```
Overwriting num2word.c
```

```
!gcc -o n2w num2word.c
```

```
!./n2w
```

```
Enter a number: 123
In words: One hundred Twenty-Three
```

7. Write a C program to find one's complement of a binary number.

```
%%writefile onecomps.c
#include <stdio.h>
#include <string.h>
int main() {
    char binary[32];
```

```
    printf("Enter a binary number: ");
    scanf("%s", binary);
    printf("One's complement: ");
    for (int i = 0; i < strlen(binary); i++) {
        if (binary[i] == '0') {
            printf("1");
        } else {
            printf("0");
        }
    }
    printf("\n");
    return 0;
}
```

```
Writing onecomps.c
```

```
!gcc -o oc onecomps.c
```

```
!./oc
```

```
Enter a binary number: 10011
One's complement: 01100
```

8. Write a C program to find two's complement of a binary number. 9. Write a C program to convert Decimal to Hexadecimal number system

```
%%writefile twocomps.c
#include <stdio.h>
#include <string.h>
int main() {
    char binary[32], ones[32];
    int carry = 1;
    printf("Enter a binary number: ");
    scanf("%s", binary);
    // Find one's complement
    for (int i = 0; i < strlen(binary); i++) {
        ones[i] = (binary[i] == '0') ? '1' : '0';
    }
    ones[strlen(binary)] = '\0';
    // Add 1 to find two's complement
    for (int i = strlen(binary) - 1; i >= 0; i--) {
        if (ones[i] == '1' && carry == 1) {
            ones[i] = '0';
        } else if (carry == 1) {
            ones[i] = '1';
            carry = 0;
        }
    }
    printf("Two's complement: %s\n", ones);
    return 0;
}
```

```
Writing twocomps.c
```

```
!gcc -o tc twocomps.c
```

```
!./tc
```

```
Enter a binary number: 10011
Two's complement: 01101
```

9. Write a C program to convert Decimal to Hexadecimal number system

```
%%writefile dectohex.c
#include <stdio.h>
int main() {
    int num;
    printf("Enter a decimal number: ");
    scanf("%d", &num);
    printf("Hexadecimal: %X\n", num);
    return 0;
}
```

```
Writing dectohex.c
```

```
!gcc -o dec2hex dectohex.c
```

```
!./dec2hex
```

```
Enter a decimal number: 33
Hexadecimal: 21
```