ADVANCE CODING ASSIGNMENT-1

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

main.c — Share — Run — Output

```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;
}
```

```
Enter a number: 3468957
Sum of digits = 42


=== Code Execution Successful ===
```

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

main.c — Share — Run — Output

```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;
}
```

```
Enter a number: 2367
First digit = 2, Last digit = 7


=== Code Execution Successful ===
```

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

main.c

Share | Run

```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;
}
```

Output

```
Enter a number: 53789
Sum of first and last digit = 14


=== Code Execution Successful ===
```

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

main.c

Share | Run

```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;
}
```

Output

```
Enter a number: 45678
Number after swapping first and last digits = 85674


=== Code Execution Successful ===
```

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

main.c

Share | Run

```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;
}
```

Output

```
Enter a number: 3546374
Digit frequencies:
3: 2 times
4: 2 times
5: 1 times
6: 1 times
7: 1 times


=== Code Execution Successful ===
```

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

main.c — Share — Run — Output

```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", "Nineteen"};
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;
    }
```

```
Enter a number: 347
In words: Three hundred Forty-Seven


=== Code Execution Successful ===
```

main.c — Share — Run — Output

```c
    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;
}
```

```
Enter a number: 347
In words: Three hundred Forty-Seven


=== Code Execution Successful ===
```

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

main.c

Share Run

Output

```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;
}
```

```
Enter a binary number: 1100101
One's complement: 0011010


=== Code Execution Successful ===
```

8. Write a C program to find two's complement of a binary number.

main.c

Share Run

Output

```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;
}
```

```
Enter a binary number: 1100101
Two's complement: 0011011


=== Code Execution Successful ===
```

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

main.c

Share Run

Output

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

```
Enter a decimal number: 44
Hexadecimal: 2C


=== Code Execution Successful ===
```