

ES-202
Introduction to Programming in C
Assignment-II
C Programming Exercises

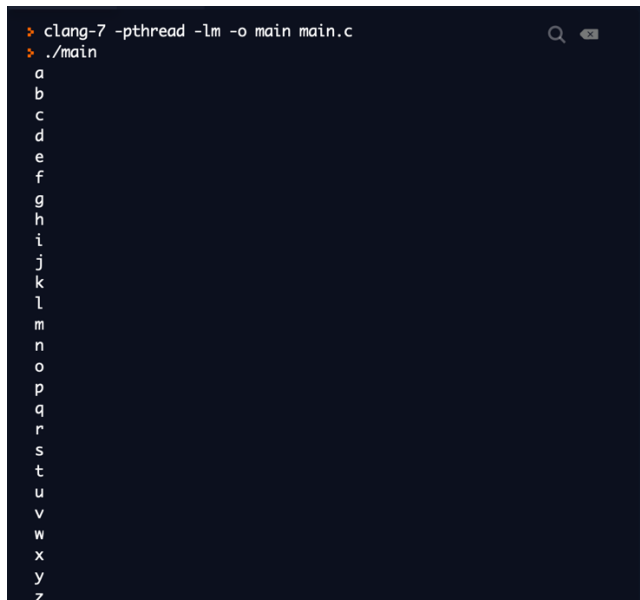
Note: All students must upload their code on GitHub and submit your GitHub link for the evaluation

1. Write a C program to print all alphabets from a to z.

Source Code:

```
#include <stdio.h>
int main()
{
    for(int i = 97;i<=122;i++)
    {
        printf(" %c \n", i);
    }
return 0;
}
```

Output:



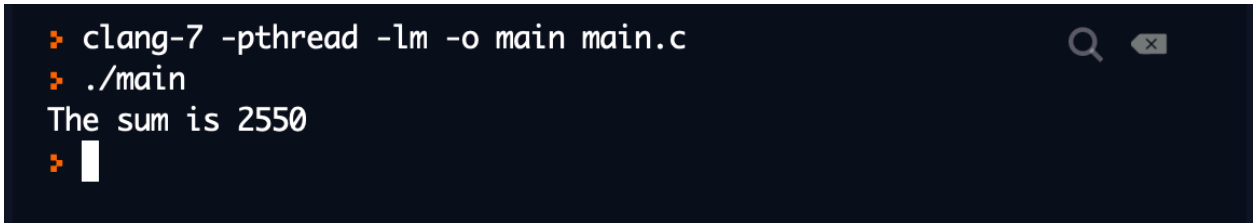
```
> clang-7 -pthread -lm -o main main.c
> ./main
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
u
v
w
x
y
z
```

2. Write a C program to print all even numbers between 1 to 100.

Source Code:

```
#include <stdio.h>
int main()
{
    int sum=0;
    for(int i = 2;i<=100;i+=2)
    {
        sum+=i;
    }
    printf("The sum is %d \n",sum);
    return 0;
}
```

Output:

A terminal window with a dark background and orange prompt characters. It shows the compilation of a C program using clang-7, followed by running the resulting binary. The output of the program is displayed on the third line.

```
> clang-7 -pthread -lm -o main main.c
> ./main
The sum is 2550
> 
```

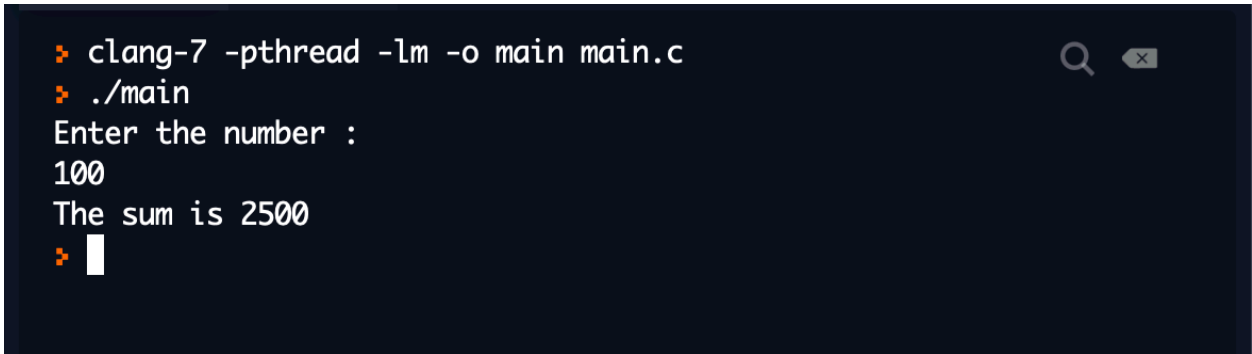
3. Write a C program to find sum of all odd numbers between 1 to n.

Source Code:

```
#include <stdio.h>

int main()
{
    int n,sum=0;
    printf("Enter the number : \n");
    scanf("%d",&n);
    for(int i = 1;i<=n;i+=2)
    {
        sum+=i;
    }
    printf("The sum is %d \n",sum);
    return 0;
}
```

Output:



```
❯ clang-7 -pthread -lm -o main main.c
❯ ./main
Enter the number :
100
The sum is 2500
❯
```

The screenshot shows a terminal window with a dark background. It displays the compilation of the C program using 'clang-7' with flags '-pthread' and '-lm' to produce an executable named 'main'. The execution of 'main' prompts the user to 'Enter the number :', where '100' is entered. The program then outputs 'The sum is 2500'. The prompt '❯' is visible at the end of the line.

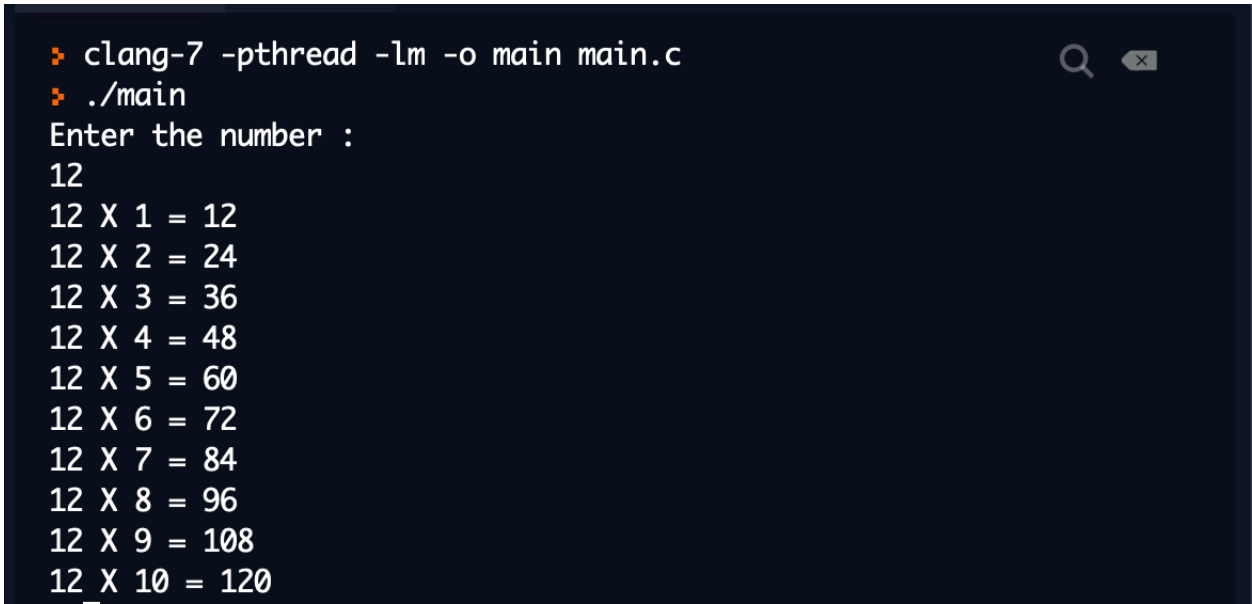
4. Write a C program to print multiplication table of any number.

Source Code:

```
#include <stdio.h>

int main()
{
    int n;
    printf("Enter the number : \n");
    scanf("%d",&n);
    for(int i = 1;i<=10;i++)
    {
        printf("%d X %d = %d \n", n, i,n*i);
    }
    return 0;
}
```

Output:



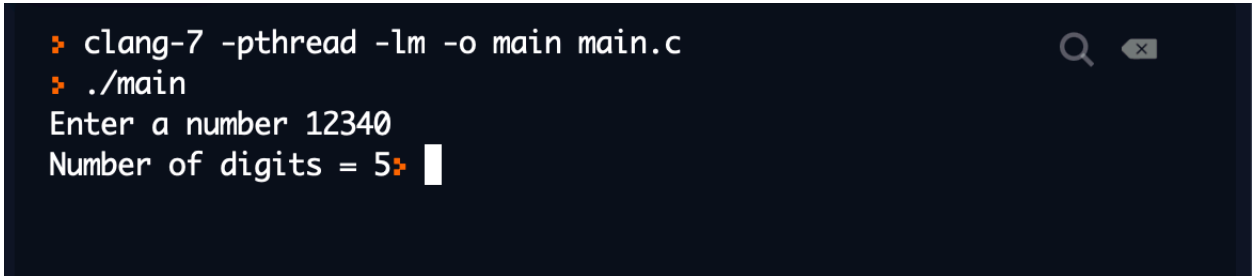
```
clang-7 -pthread -lm -o main main.c
./main
Enter the number :
12
12 X 1 = 12
12 X 2 = 24
12 X 3 = 36
12 X 4 = 48
12 X 5 = 60
12 X 6 = 72
12 X 7 = 84
12 X 8 = 96
12 X 9 = 108
12 X 10 = 120
```

5. Write a C program to count number of digits in a number.

Source Code:

```
#include <stdio.h>
#include <math.h>
int main()
{
    int a;
    printf("Enter a number ");
    scanf("%d",&a);
    int numofdigits = log10(a)+ 1;
    printf("Number of digits = %d", numofdigits);
    return 0;
}
```

Output:

A terminal window with a dark background. It shows the compilation of a C program using 'clang-7' with flags '-pthread -lm -o main main.c'. Then, the program is executed with './main'. The program prompts 'Enter a number' and the user enters '12340'. The program then outputs 'Number of digits = 5'.

```
❯ clang-7 -pthread -lm -o main main.c
❯ ./main
Enter a number 12340
Number of digits = 5
```

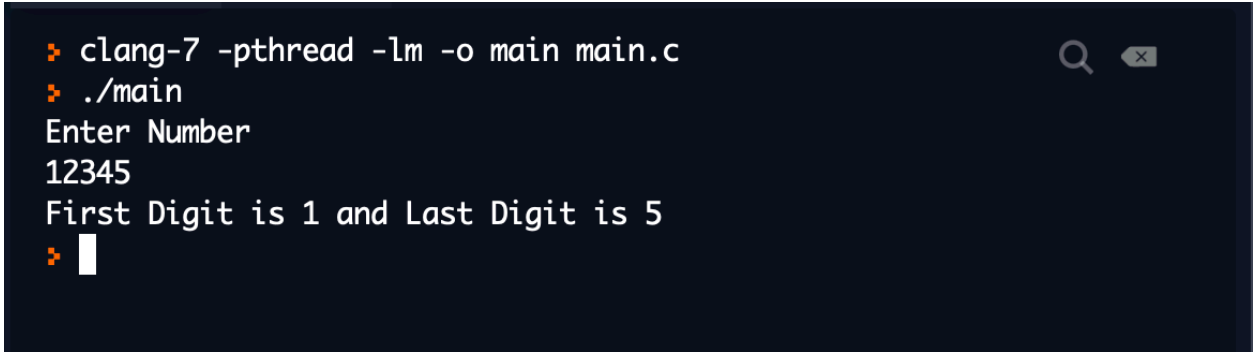
6. Write a C program to find first and last digit of a number.

Source Code:

```
#include <stdio.h>

int main()
{
    int n;
    int fd,ld;
    printf("Enter Number \n");
    scanf("%d",&n);
    int temp = n;
    ld = n%10;
    while(temp>0)
    {
        fd=temp%10;
        temp= temp/10;
    }
    printf("First Digit is %d and Last Digit is %d \n",fd,ld);
}
```

Output:



```
❏ clang-7 -pthread -lm -o main main.c
❏ ./main
Enter Number
12345
First Digit is 1 and Last Digit is 5
❏
```

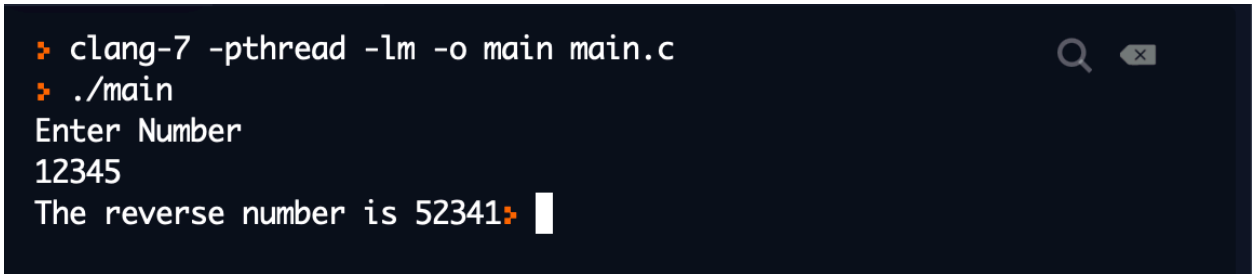
7. Write a C program to swap first and last digits of a number.

Source Code:

```
#include <stdio.h>
int main()
{
    int n;
    int fd,ld,rev;
    printf("Enter Number \n");
    scanf("%d",&n);
    int temp = n;
    ld = n%10;
    rev = 0;
    while(temp>0)
    {
        fd=temp%10;
        rev = rev*10+fd;
        temp= temp/10;

    }
    int newnum = ld;
    temp = rev/10;
    while(temp>9)
    {
        newnum = newnum*10+(temp%10);
        temp/=10;
    }
    newnum = fd+(newnum*10);
    printf("The reverse number is %d",newnum);
    return 0;
}
```

Output:

A terminal window with a dark background. It shows the compilation of a C program using 'clang-7 -pthread -lm -o main main.c' and its execution with './main'. The program prompts 'Enter Number' and the user enters '12345'. The program then outputs 'The reverse number is 52341'.

```
> clang-7 -pthread -lm -o main main.c
> ./main
Enter Number
12345
The reverse number is 52341
```

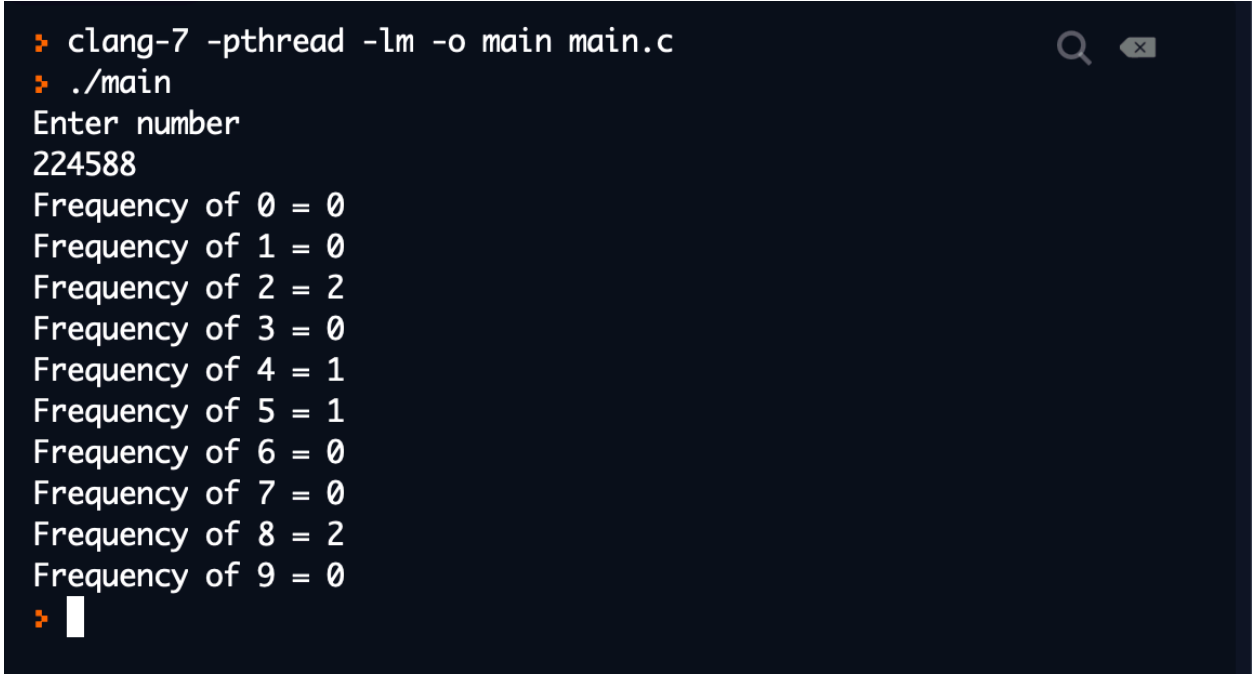
8. Write a C program to find frequency of each digit in each integer.

Source Code:

```
#include <stdio.h>

int main()
{
    int num, lastd, i;
    int freq [10];
    printf("enter number");
    scanf ("%d" , &num);
    for(i=0; i<10; i++)
    {
        freq[i] = 0;
    }
    while (num != 0)
    {
        lastd = num%10;
        freq [lastd]++ ;
        num = num/10;
    }
    for(i=0; i<10; i++)
    {
        printf("Frequency of %d = %d\n", i, freq[i]);
    }
    return 0;
}
```

Output:



```
❖ clang-7 -pthread -lm -o main main.c
❖ ./main
Enter number
224588
Frequency of 0 = 0
Frequency of 1 = 0
Frequency of 2 = 2
Frequency of 3 = 0
Frequency of 4 = 1
Frequency of 5 = 1
Frequency of 6 = 0
Frequency of 7 = 0
Frequency of 8 = 2
Frequency of 9 = 0
❖ █
```


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

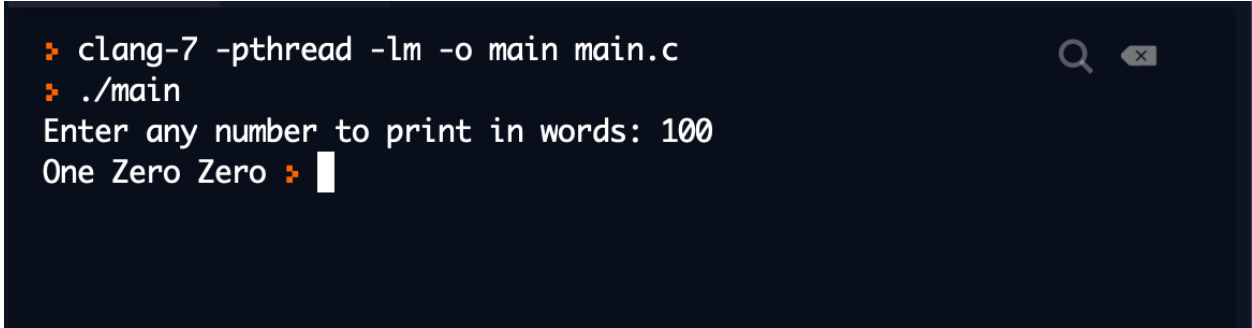
Source Code:

```
#include <stdio.h>
#include <math.h>

int main()
{
    int n, num = 0, digits;
    printf("Enter any number to print in words: ");
    scanf("%d", &n);
    digits = (int) log10(n);
    while(n != 0)
    {
        num = (num * 10) + (n % 10);
        n /= 10;
    }
    digits = digits - ((int) log10(num));
    while(num != 0)
    {
        switch(num % 10)
        {
            case 0:
                printf("Zero ");
                break;
            case 1:
                printf("One ");
                break;
            case 2:
                printf("Two ");
                break;
            case 3:
                printf("Three ");
                break;
            case 4:
                printf("Four ");
                break;
            case 5:
                printf("Five ");
                break;
            case 6:
                printf("Six ");
                break;
            case 7:
                printf("Seven ");
                break;
            case 8:
                printf("Eight ");
                break;
            case 9:
                printf("Nine ");
                break;
        }

        num /= 10;
    }
}
```

```
    }  
    while(digits)  
    {  
        printf("Zero ");  
        digits--;  
    }  
    return 0;  
}  
Output:
```



```
❖ clang-7 -pthread -lm -o main main.c  
❖ ./main  
Enter any number to print in words: 100  
One Zero Zero ❖
```

A terminal window with a dark background. It shows the compilation of a C program using clang-7 with pthread and libm libraries, followed by running the program. The program prompts for a number, and the user enters 100. The output is "One Zero Zero".

10. Write a C program to print all ASCII character with their values.

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    for(int i = 33;i<=122;i++)
```

```
    {
```

```
        printf("ASCII value of %c = %d \n", i, i);
```

```
    }
```

```
    return 0;
```

```
}
```

```
❏ clang-7 -pthread -lm -o main main.c
```

```
❏ ./main
```

```
ASCII value of ! = 33
```

```
ASCII value of " = 34
```

```
ASCII value of # = 35
```

```
ASCII value of $ = 36
```

```
ASCII value of % = 37
```

```
ASCII value of & = 38
```

```
ASCII value of ' = 39
```

```
ASCII value of ( = 40
```

```
ASCII value of ) = 41
```

```
ASCII value of * = 42
```

```
ASCII value of + = 43
```

```
ASCII value of , = 44
```

```
ASCII value of - = 45
```

```
ASCII value of . = 46
```

```
ASCII value of / = 47
```

```
ASCII value of 0 = 48
```

```
ASCII value of 1 = 49
```

```
ASCII value of 2 = 50
```

```
ASCII value of 3 = 51
```

```
ASCII value of 4 = 52
```

```
ASCII value of 5 = 53
```

```
ASCII value of 6 = 54
```

```
ASCII value of 7 = 55
```

```
ASCII value of 8 = 56
```

```
ASCII value of 9 = 57
```

```
ASCII value of : = 58
```

```
ASCII value of ; = 59
```

```
ASCII value of < = 60
```

```
ASCII value of = = 61
```

```
ASCII value of > = 62
```

```
ASCII value of ? = 63
```

```
ASCII value of @ = 64
```

```
ASCII value of A = 65
ASCII value of B = 66
ASCII value of C = 67
ASCII value of D = 68
ASCII value of E = 69
ASCII value of F = 70
ASCII value of G = 71
ASCII value of H = 72
ASCII value of I = 73
ASCII value of J = 74
ASCII value of K = 75
ASCII value of L = 76
ASCII value of M = 77
ASCII value of N = 78
ASCII value of O = 79
ASCII value of P = 80
ASCII value of Q = 81
ASCII value of R = 82
ASCII value of S = 83
ASCII value of T = 84
ASCII value of U = 85
ASCII value of V = 86
ASCII value of W = 87
ASCII value of X = 88
ASCII value of Y = 89
ASCII value of Z = 90
ASCII value of [ = 91
ASCII value of \ = 92
ASCII value of ] = 93
ASCII value of ^ = 94
ASCII value of _ = 95
ASCII value of ` = 96
ASCII value of a = 97
ASCII value of b = 98
```

```
ASCII value of Z = 90
ASCII value of [ = 91
ASCII value of \ = 92
ASCII value of ] = 93
ASCII value of ^ = 94
ASCII value of _ = 95
ASCII value of ` = 96
ASCII value of a = 97
ASCII value of b = 98
ASCII value of c = 99
ASCII value of d = 100
ASCII value of e = 101
ASCII value of f = 102
ASCII value of g = 103
ASCII value of h = 104
ASCII value of i = 105
ASCII value of j = 106
ASCII value of k = 107
ASCII value of l = 108
ASCII value of m = 109
ASCII value of n = 110
ASCII value of o = 111
ASCII value of p = 112
ASCII value of q = 113
ASCII value of r = 114
ASCII value of s = 115
ASCII value of t = 116
ASCII value of u = 117
ASCII value of v = 118
ASCII value of w = 119
ASCII value of x = 120
ASCII value of y = 121
ASCII value of z = 122
> █
```