

Programming in C/C++ LAB MANUAL

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Lab Exercises for Week 2

Q1. Write a program to generate a sequence of numbers in both ascending and descending order.

Q2. Write a program to generate pascals triangle

Q3. Write a program to reverse the digits of a given number.

Q4. Write a program to convert an amount in figures to equivalent amount in words.

a. Convert an amount (in millions) to equivalent amount in words

b. Convert an amount (in billions) to equivalent amount in words

Q5. Write a program to find sum of all prime numbers between 100 and 500.

Q1. Write a program to generate a sequence of numbers in both ascending and descending order.

```
#include <stdio.h>
int main() {
    int n, data[100], i, j, temp;

    /* get the number of entries */
    printf("Enter your input for n:");
    scanf("%d", &n);

    /* get the input sequence */
    for (i = 0; i < n; i++)
        scanf("%d", &data[i]);

    /* sort the given sequence in ascending order */
    for (i = 0; i < n-1; i++) {
        for (j = i + 1; j < n; j++) {
            if (data[i] > data[j]) {
                temp = data[i];
                data[i] = data[j];
                data[j] = temp;
            }
        }
    }

    /* sequence in ascending order */
    printf("Ascending Order:\n");
    for (i = 0; i < n; i++)
        printf("%d\n", data[i]);

    /* sequence in descending order */
    printf("\nDescending Order:\n");
    for (i = n-1; i >= 0; i--)
        printf("%d\n", data[i]);

    return 0;
}
```

Q2. Write a program to generate pascals triangle

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

```

long factorial(int);
int main()
{
    int i, n, c;

    printf("Enter the number of rows you wish to see in pascal triangle\n");
    scanf("%d",&n);

    for (i = 0; i < n; i++)
    {
        for (c = 0; c <= (n - i - 2); c++)
            printf(" ");

        for (c = 0 ; c <= i; c++)
            printf("%ld ",factorial(i)/(factorial(c)*factorial(i-c)));

        printf("\n");
    }

    return 0;
}

long factorial(int n)
{
    int c;
    long result = 1;

    for (c = 1; c <= n; c++)
        result = result*c;

    return result;
}

```

Q3. Write a program to reverse the digits of a given number.

```

#include <stdio.h>

int main()
{
    int n, reverse = 0;

    printf("Enter a number to reverse\n");
    scanf("%d", &n);

```

```

while (n != 0)
{
    reverse = reverse * 10;
    reverse = reverse + n%10;
    n = n/10;
}

printf("Reverse of entered number is = %d\n", reverse);

return 0;
}

```

Q4. Write a program to convert an amount in figures to equivalent amount in words.

*/*Converts an amount (in millions) to equivalent amount in words*/*

```

#include<stdio.h>

void pw(long,char[]);
char *one[]={" "," one"," two"," three"," four"," five"," six"," seven",
"eight"," Nine"," ten"," eleven"," twelve"," thirteen"," fourteen",
"fifteen"," sixteen"," seventeen"," eighteen"," nineteen"};
char *ten[]={" "," "," twenty"," thirty"," forty"," fifty"," sixty",
"seventy"," eighty"," ninety"};

int main()
{
    long n;
    printf("Enter any 9 digit no: ");
    scanf("%9ld",&n);
    if(n<=0)
        printf("Enter numbers greater than 0");
    else
    {
        pw((n/1000000),"crore");
        pw(((n/100000)%100),"lakh");
        pw(((n/1000)%100),"thousand");
        pw(((n/100)%10),"hundred");
        pw((n%100)," ");
    }
    return 0;
}

```

```
void pw(long n,char ch[])
{
(n>19)?printf("%s %s ",ten[n/10],one[n%10]):printf("%s ",one[n]);
if(n)printf("%s ",ch);
}
```

Q5. Write a program to find sum of all prime numbers between 100 and 500.

```
#include<stdio.h>
int main()
{
int i,j,sum=0;
printf("the prime numbers are:\n");
for(i=100;i<=500;i++)
{
for(j=2;j<i;j++)
{
if(i%j==0)
break;
}

if(i==j)
printf("%d\t",i);
sum=sum+i;
}

printf("sum of prime numbers between 100 and 500 is %d",sum);
return 0;

}
```

Assignments to be done by students in Lab

1. Convert an amount (in billions) to equivalent amount in words