Name: Khizar Ali

Roll No: 22P-9269

Subject: Programing Fundamentals LAB

Submitted to: Muhammad Usman

Problem: 1

```c
#include <stdio.h>

int main()
{
    int x,y;
    printf("Enter the number of rows");
    scanf("%d",&x);
    y=x;
   for(int i=1;i<=x;i++)
   {
       for(int j=1;j<i;j++)
       {
           printf(" ");
       }
       for(int k=1;k<=y;k++)
       {
           printf("*");
       }
       y--;

      printf("\n");
    }
    printf("..........................................................................
..........................................................\n");
      y=1;
      for(int i=x;i>=1;i--)
    {
        for(int j=1;j<=i-1;j++)
        {
          printf(" ");
        }
        for(int k=1;k<=y;k++)
        {
            printf("*");
        }
        printf("\n");
        y++;
    }
    return 0;
}
```

Output:

```
PS C:\Users\p22-9269\Desktop\Khizar\Pf lab\Ex 6> gcc 1.c
PS C:\Users\p22-9269\Desktop\Khizar\Pf lab\Ex 6> ./a.exe
Enter the number of rows5
*****
 ****
  ***
   **
    *
.....................................................................................................................
    *
   **
  ***
 ****
*****
```

Problem 2:

```c
include <stdio.h>

int main()
{
    int x,y;
    char c ;
    printf("Enter the character \n");
    scanf("%c",&c);
    printf("Enter the number of rows \n");
    scanf("%d",&x);
      for(int i=1;i<=x;++i)
    {
        for(int j=1;j<=i;++j)
        {
          printf("%c",c);
        }
        printf("\n");
    }
        for(int k=x-1;k>=1;--k)
        {
           for(int j=1;j<=k;++j)
           {
            printf("%c",c);
           }
            printf("\n");
        }
    return 0;
}
```

Output

```
PS C:\Users\p22-9269\Desktop\Khizar\Pf lab\Ex 6> ./a.exe
Enter the character
#
Enter the number of rows
5
#
##
###
####
#####
####
###
##
#
```

Problem 3:

```c
#include <stdio.h>
float Fact(int n)
{
  int f = 1;
  for (int i = 1; i <= n; i++)
  {
    f = f * i;
  }
  return f;
}
float power(int exp, int base)
{
  int p = 1;

  for (int i = 1; i <= exp; i++)
  {
    p = p * base;
  }

  return p;
}
int main()
{
  int n, x;
  float P, F;
  float sum = 0;
  printf("Enter value of n \n");
  scanf("%d", &n);
  printf("Enter value of x \n");
  scanf("%d", &x);
```

```
  for (int k = 0; k <= n; k++)
  {
    P = power(k, x);
    F = Fact(k);
    sum = sum + (P / F);
  }
  printf("%.2f", sum);
  return 0;
}
```

Output:

```
PS C:\Users\Warraich Computer\Downloads\Ex 6> gcc 3.c
PS C:\Users\Warraich Computer\Downloads\Ex 6> ./a.exe
Enter value of n
5
Enter value of x
3
18.40
```

Problem 4:

```
#include <stdio.h>

int main()
{
    int num=1, rem, sum,c=0;

    for (int k = 2; k >0; k++)
    {
        sum = 0;
                for (int i = 1; i <= num/2; i++)
        {
            rem = num % i;
            if (rem == 0)
            {
                sum = sum + i;
        }
     }
        if (sum == num)        {
           c++;
           printf(" %d is a Perfect Number\n", num);

          if (c == 4)
          {
              break;            }
```

```
        }
        num++;
    }
    return 0;
}
```

Output

```
PS C:\Users\p22-9269\Desktop\Khizar\Pf lab\Ex 6> gcc 4.c
PS C:\Users\p22-9269\Desktop\Khizar\Pf lab\Ex 6> ./a.exe
 6 is a Perfect Number
 28 is a Perfect Number
 496 is a Perfect Number
 8128 is a Perfect Number
```