Lakshay Sharma

Hindu College

Section B

1. Write a Program to enter the 5 subjects numbers and print the grades A/B/C/D/E.

In [1]:
```
# Get the input of 5 subjects marks
marks = []
for i in range(5):
    marks.append(int(input("Enter the marks of subject {}: ".format(i+1))))

# Calculate the total marks
total_marks = sum(marks)

# Calculate the average marks
average_marks = total_marks / 5

# Assign the grade based on average marks
if average_marks >= 90:
    grade = "A"
elif average_marks >= 80:
    grade = "B"
elif average_marks >= 70:
    grade = "C"
elif average_marks >= 60:
    grade = "D"
else:
    grade = "E"
```

```
# Print the grade
print("Your grade is:", grade)
```

```
Enter the marks of subject 1: 44
Enter the marks of subject 2: 55
Enter the marks of subject 3: 44
Enter the marks of subject 4: 33
Enter the marks of subject 5: 66
Your grade is: E
```

2. Write a program in python language to display the given pattern:

In [10]:
```
arr = range(6) # range generator in python 3
for i in range(len(arr)-1,0,-1):
    print('\n')
    print(' '*i,arr[i],end='')
    for j in range(i+1,6):
        print(j,end='')
```

```
 5

 45

 345

 2345

 12345
```

3. Write a python function sin(x,n) to calculate the value of sin(x) using its Taylor series expansion up to n terms.

In [11]:
```
import math

def sin(x, n):
    sin_value = 0
    for i in range(n):
        sign = (-1) ** i
```

```
        numerator = x ** (2 * i + 1)
        denominator = math.factorial(2 * i + 1)
        sin_value += sign * (numerator / denominator)
    return sin_value

# Testing the function
angle = int(input("Enter angle in degrees : ") )# in degrees
x = math.radians(angle)  # converting degrees to radians
n = 10  # number of terms in the series
print("sin({}) = {:.4f}".format(angle, sin(x, n)))
```

```
Enter angle in degrees : 35
sin(35) = 0.5736
```

In [ ]: