

```
c:\practicals 3rd sem\Numercial methods\NM>a.exe
-----Subash Katwal-----
Enter the number of data points:
6
Enter the data points (x y):
0 1.0
1 0.891
3 0.708
5 0.562
7 0.447
9 0.355
Choose the equation type:
1.  $y = ax^b$ 
2.  $y = ae^{(bx)}$ 
Enter your choice (0 to exit): 2
The equation in the form  $y = ae^{(bx)}$  is:  $y = 0.9997 * \exp(-0.115 * x)$ 
Choose the equation type:
1.  $y = ax^b$ 
2.  $y = ae^{(bx)}$ 
Enter your choice (0 to exit): 1
The equation in the form  $y = ax^b$  is:  $y = 1.00 * x^{-0.115}$ 
Choose the equation type:
1.  $y = ax^b$ 
2.  $y = ae^{(bx)}$ 
Enter your choice (0 to exit): 0
```

```
c:\practicals 3rd sem\Numerical methods\NM>g++ polynomial_regression.c
```

```
c:\practicals 3rd sem\Numerical methods\NM>a.exe
```

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-----Subash katwal-----
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```
Enter the number of data points: 9
```

```
Enter the degree of the polynomial: 2
```

```
Enter the data points (x y):
```

```
1 2
```

```
3 7
```

```
4 8
```

```
5 10
```

```
6 11
```

```
7 11
```

```
8 10
```

```
9 9
```

```
10 8
```

```
The coefficients of the polynomial equation are:
```

```
a0 = -1.460
```

```
a1 = 3.605
```

```
a2 = -0.268
```

```
The required polynomial equation is:  $-1.460 + 3.605x^1 + -0.268x^2$ 
```

cals 3rd sem\Numerical methods\NM\"Gauss_Jordan

-----Subash katwal-----

Enter the order of square matrix: 3

Enter the element inside the matrix below:

A[0][0]: 2

A[0][1]: -1

A[0][2]: 4

A[0][3]: 15

A[1][0]: 2

A[1][1]: 3

A[1][2]: -2

A[1][3]: 1

A[2][0]: 3

A[2][1]: 2

A[2][2]: -4

A[2][3]: -4

The provided Augmented matrix is:

2.00	-1.00	4.00	15.00
------	-------	------	-------

2.00	3.00	-2.00	1.00
------	------	-------	------

3.00	2.00	-4.00	-4.00
------	------	-------	-------

After solving the Augmented matrix:

1.00	0.00	0.00	2.00
------	------	------	------

0.00	1.00	0.00	1.00
------	------	------	------

0.00	0.00	1.00	3.00
------	------	------	------

Values of x1, x2, and x3:

x1 = 2.00

x2 = 1.00

x3 = 3.00

```
C:\practicals 3rd sem\Numercial methods>cd "c:\practicals 3rd sem\
cals 3rd sem\Numercial methods\NM\"Naive_Guass
-----Subash Katwal-----
Enter the order of the matrix: 3
Enter the augmented matrix coefficients row-wise:
2 1 1 5
4 -6 0 -2
-2 7 2 9
Augmented matrix before Gaussian elimination:
2.00    1.00    1.00    5.00
4.00   -6.00    0.00   -2.00
-2.00    7.00    2.00    9.00

Augmented matrix after Gaussian elimination:
4.00   -6.00    0.00   -2.00
0.00    4.00    1.00    6.00
0.00    0.00    1.00    2.00

Values of x1, x2, x3:
x1 = 1.00
x2 = 1.00
x3 = 2.00
```

```
c:\practicals 3rd sem\Numerical methods\NM>g++ Gauss_pivoting.c
```

```
c:\practicals 3rd sem\Numerical methods\NM>a.exe
```

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-----Subash katwal-----
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```
Enter the order of the matrix: 3
```

```
Enter the augmented matrix coefficients row-wise:
```

```
20 15 10 45
```

```
-3 -2.249 7 1.751
```

```
5 1 3 9
```

```
Augmented matrix before Gaussian elimination:
```

```
20.00  15.00  10.00  45.00
```

```
-3.00  -2.25  7.00  1.75
```

```
5.00   1.00   3.00   9.00
```

```
Augmented matrix after Gaussian elimination:
```

```
20.00  15.00  10.00  45.00
```

```
0.00   0.00   8.50   8.50
```

```
0.00   0.00 23377.19 23377.20
```

```
Values of x1, x2, x3:
```

```
x1 = 1.00
```

```
x2 = 1.00
```

```
x3 = 1.00
```