

Data for non-linear (polynomial model):

x	1	3	4	5	6	7	8	9	10
y	2	7	8	10	11	11	10	9	8

Output:

```
C:\csit\third sem Jonash\NM\ * + ▾
*****Non-linear Regression (Polynomial model)*****
Compiled by -> Jonash Chataut
Enter no. of data points:
9
Enter the degree of polynomial to be fitted
2
Enter the data points x and f(x)
1      2
3      7
4      8
5      10
6      11
7      11
8      10
9      9
10     8
The polynomial of regression is :
y = -1.46 + 3.61 x + -0.27 x^2
-----
Process exited after 30.3 seconds with return value 0
Press any key to continue . . . |
```

Data for non-linear (exponential model):

x	0	1	3	5	7	9
y	1	0.891	0.708	0.562	0.447	0.355

Output:

```
C:\csit\third sem Jonash\NM\ * + ▾
*****Non-linear Regression (Exponential model)*****
Compiled by -> Jonash Chataut
Enter the number of points:
6
Enter the value of x and fx(y)
0      1.00
1      0.831
3      0.708
5      0.562
7      0.447
9      0.355
Fitted curve (i.e. y=ae^bx) is:
y = 0.97e^-0.11x
-----
Process exited after 52.89 seconds with return value 0
Press any key to continue . . .
```

Data for Linear Regression:

x	1	2	3	4	5
y	3	5	7	10	12

Output:

```
C:\csit\third sem Jonash\NM\  X  +  ▾
*****Linear Regression*****
Compiled by -> Jonash Chataut
Enter the number of points:
5
Enter the value of x and fx(y)
1      3
2      5
3      7
4      10
5      12
Fitted line (i.e. y=a+bx) is:
y = 0.500 + 2.300 x
-----
Process exited after 23.49 seconds with return value 0
Press any key to continue . . . |
```

Data for Newton's forward difference interpolation:

x	1	1.3	1.6	1.9	2.2
F(x)	0.765198	0.620086	0.455402	0.281819	0.110362

Output:

```
C:\csit\third sem Jonash\NM\ * + ▾
*****
Newton's Forward Difference Interpolation*****
Compiled by -> Jonash Chataut
Enter the number of points:
5
Enter the value at which interpolated value is needed:
1.1
Enter the value of x and fx at i = 0:
1.0    0.7651977
Enter the value of x and fx at i = 1:
1.3    0.6200860
Enter the value of x and fx at i = 2:
1.6    0.4554022
Enter the value of x and fx at i = 3:
1.9    0.2818186
Enter the value of x and fx at i = 4:
2.2    0.1103623
Interpolation value = 0.719646
-----
Process exited after 79.34 seconds with return value 0
Press any key to continue . . .
```

Data for Newton's divided difference interpolation:

x	3	7	9	10
F(x)	168	120	72	63

Output:

```
C:\csit\third sem Jonash\NM\ * + ^

*****Newton's Divided Difference Interpolation*****
Compiled by -> Jonash Chataut
Enter the number of points: 4
Enter the value of x: 8
Enter the value of x and fx at i = 0:
3      168
Enter the value of x and fx at i = 1:
7      120
Enter the value of x and fx at i = 2:
9      72
Enter the value of x and fx at i = 3:
10     63
Interpolation value = 93.000000

-----
Process exited after 29.17 seconds with return value 0
Press any key to continue . . . |
```

Data for Lagrange interpolation:

x	0	10	15	20	22.5	30
F(x)	0	227.04	362.78	517.35	602.97	901.67

Output:

```
C:\csit\third sem Jonash\NM\ * + ▾
*****Lagrange Interpolation*****
Compiled by -> Jonash Chataut
Enter the number of points
6
Enter the value of x
16
Enter the value of x and fx at i = 0
0      0
Enter the value of x and fx at i = 1
10     227.04
Enter the value of x and fx at i = 2
15     362.78
Enter the value of x and fx at i = 3
20     517.35
Enter the value of x and fx at i = 4
22.5   602.97
Enter the value of x and fx at i = 5
30     901.67
Interpolation value = 392.071
-----
Process exited after 50.47 seconds with return value 0
Press any key to continue . . . |
```