Inputs given to the program

Size of data set

```
Command Window
Hermite Interpolation

Enter the size of data set :
3

NOTE: If you want a polynomial of degree <= 2n+1,then input n data points.
Enter the data set. e.g. {X1,X2,...} & {f(X1),f(X2),...}.
```

Values of X

```
Enter X0 :
-1
Enter X1 :
0
Enter X2 :
1
```

Values of f(X)

```
Enter f(X0) :
1
Enter f(X1) :
1
Enter f(X2) :
3
```

Values of $f^1(X)$

```
Enter (d/dx)f(X0) :
-5
Enter (d/dx)f(X1) :
1
Enter (d/dx)f(X2) :
7
```

Outputs of the program

Option 2 selected

```
Select an option.
1. Exit
2. Interpolating polynomial
3. Interpolate at a point
4. Truncation error at a Point
5. Bound on error
Your option :
2


INTERPOLATING POLYNOMIAL
ans =


2*x^4 - x^2 + x + 1
```

Option 3 selected

```
Select an option.
1. Exit
2. Interpolating polynomial
3. Interpolate at a point
4. Truncation error at a Point
5. Bound on error
Your option :
3


Enter X where you want to interpolate :
0.3
Value of f(0.30000) ≈ 1.22620
```

Option 4 Selected

```
Select an option.
1. Exit
2. Interpolating polynomial
3. Interpolate at a point
4. Truncation error at a Point
5. Bound on error
Your option :
4


Enter X where you want truncation error :
-0.1
The appx. error in f(-0.10000) is 0.00001*M.
Where M is the 6th derivative of f(X) at X = -0.10000.
```

Option 5 Selected

```
Select an option.
1. Exit
2. Interpolating polynomial
3. Interpolate at a point
4. Truncation error at a Point
5. Bound on error
Your option :
5


Bound on error = 0.00021*M
Where M = max[6th derivative of f(X); -1 ≤ X ≤ 1]
```