

Main Menu

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>g++ Calculator.cpp Complex.cpp Final.cpp MAddSub.cpp Matrices.cpp MEchelon.cpp MMultiplication.cpp Mode.cpp MTranspose.c
pp Polynomials.cpp -o a
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a

      Biomedical Engineering Survival Pack

      Programming Final Project
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Please Choose a Mode:
1. Matrices (Addition, Subtraction, Multiplication, Transpose, Echelon)
2. Polynomials (Graph, Peak)
3. Complex
4. Basic Calculator
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```

Matrix Multiplication

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 1
Mode: Matrices

Please Choose a Mode:
1. Multiplication
2. Echelon
3. Transpose
4. Addition or Subtraction
Mode: 1

Mode: Matrix Multiplication(Max Row & Column = 4)

Enter rows of matrix : 2
Enter columns of matrix : 2
Enter Data for Matrix A (2x2):
Element [0][0]: 1
Element [0][1]: 2
Element [1][0]: 3
Element [1][1]: 4
Enter Data for Matrix B (2x2):
Element [0][0]: 1
Element [0][1]: 2
Element [1][0]: 3
Element [1][1]: 4
Entered Matrix:
1 2
3 4
Entered Matrix:
1 2
3 4
Result of Multiplication is:
7 10
15 22
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```

Echelon Matrix

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 1
Mode: Matrices
Please Choose a Mode:
1.Multiplication
2.Echelon
3.Transpose
4.Addition or Substraction
Mode: 2
Mode: Matrix Echelon(Max Row & Column = 4)
Enter rows of matrix : 2
Enter columns of matrix : 2
Enter Data for Matrix A (2x2):
element [0][0]: 1
element [0][1]: 2
element [1][0]: 3
element [1][1]: 4
Entered Matrix:
1 2
3 4
Echelon Matrix:
1 2
0 -2
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>_
```

Transpose Matrix

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 1
Mode: Matrices
Please Choose a Mode:
1.Multiplication
2.Echelon
3.Transpose
4.Addition or Substraction
Mode: 3
Mode: Matrix Transpose(Max Row & Column = 4)
Enter rows of matrix : 2
Enter columns of matrix : 2
Enter Data for Matrix A (2x2):
element [0][0]: 1
element [0][1]: 2
element [1][0]: 3
element [1][1]: 4
Entered Matrix:
1 2
3 4
Transpose of Matrix :
13
24
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>_
```

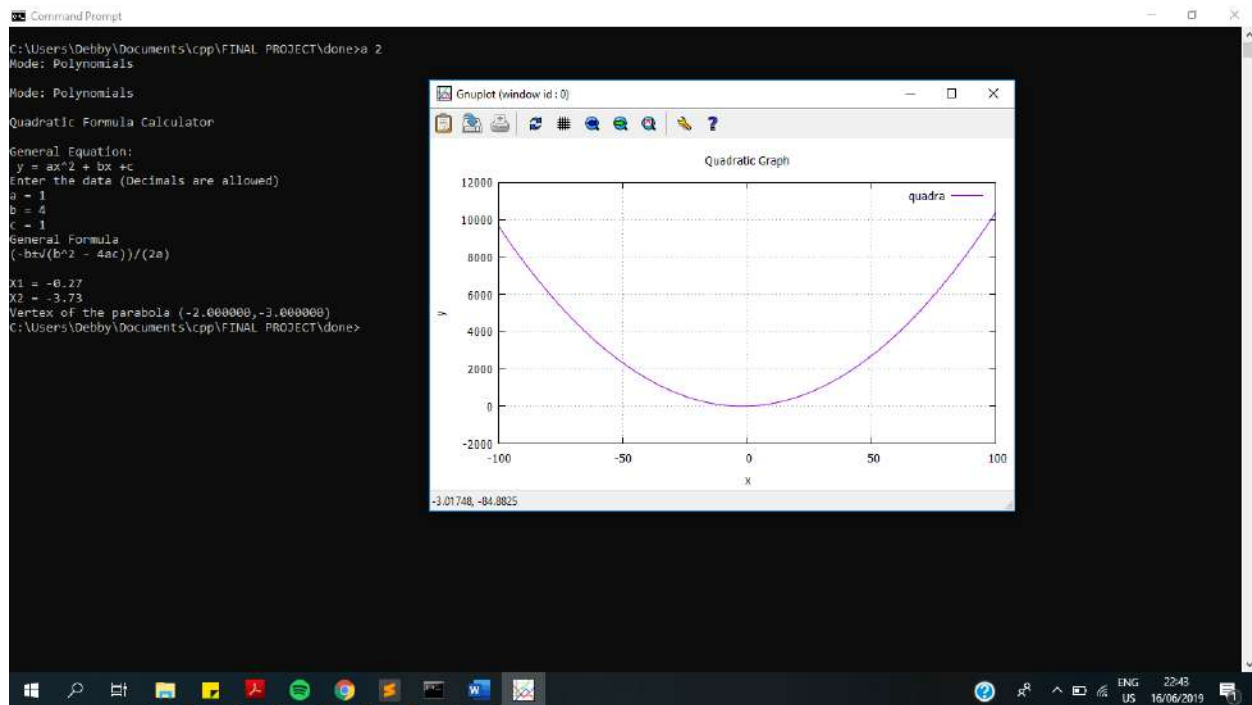
Matrix Addition

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 1
Mode: Matrices
Please Choose a Mode:
1.Multiplication
2.Echelon
3.Transpose
4.Addition or Subtraction
Mode: 4
Mode: Matrix Addition or Subtraction (Max Row & Column = 4)
Enter rows of matrix : 2
Enter columns of matrix : 2
Enter matrix A (2x2):
Element [0][0]: 1
Element [0][1]: 2
Element [1][0]: 3
Element [1][1]: 4
Enter matrix B (2x2):
Element [0][0]: 1
Element [0][1]: 2
Element [1][0]: 3
Element [1][1]: 4
Choose Mode:
1. Addition
2. Subtraction
Mode: 1
2 4
5 8
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>.
```

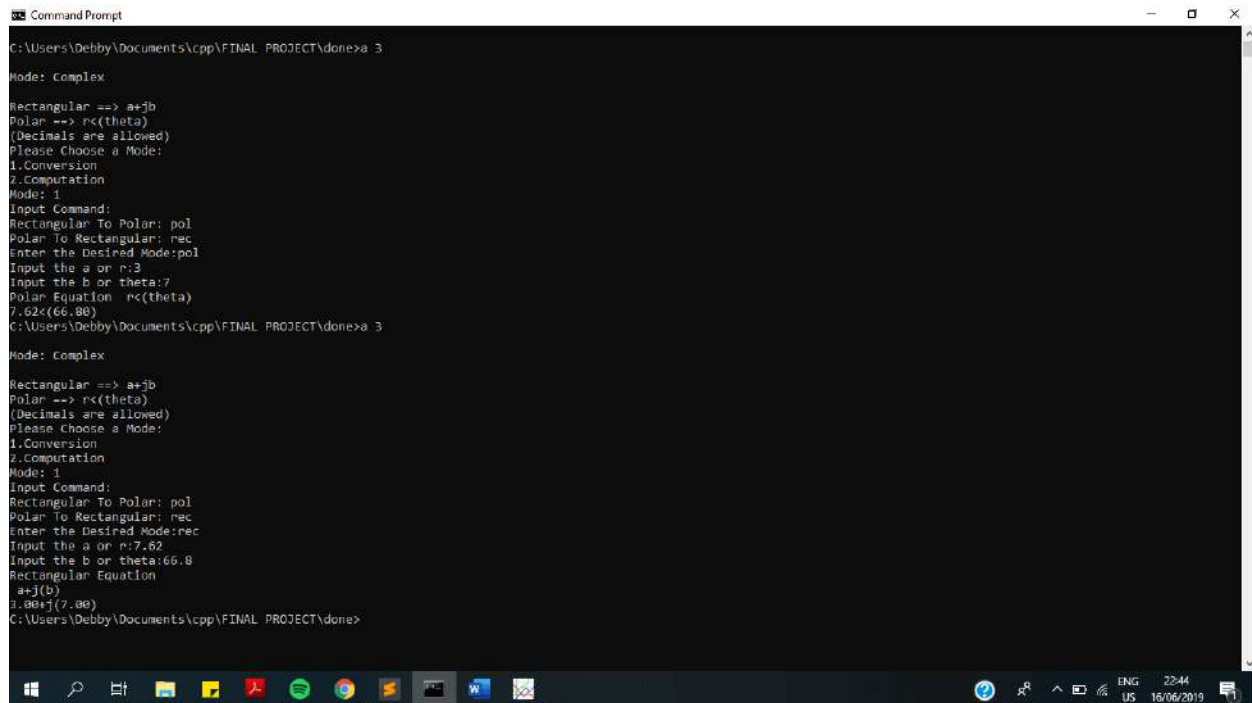
Matrix Subtraction

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 1
Mode: Matrices
Please Choose a Mode:
1.Multiplication
2.Echelon
3.Transpose
4.Addition or Subtraction
Mode: 4
Mode: Matrix Addition or Subtraction (Max Row & Column = 4)
Enter rows of matrix : 2
Enter columns of matrix : 2
Enter matrix A (2x2):
Element [0][0]: 1
Element [0][1]: 2
Element [1][0]: 3
Element [1][1]: 4
Enter matrix B (2x2):
Element [0][0]: 1
Element [0][1]: 2
Element [1][0]: 3
Element [1][1]: 4
Choose Mode:
1. Addition
2. Subtraction
Mode: 2
0 0
0 0
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>.
```

Polynomials



Complex Number Converter



Complex Number Addition

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 3
Mode: Complex
Rectangular ==> a+jb
Polar ==> r<(theta)
(Decimals are allowed)
Please Choose a Mode:
1. Conversion
2. Computation
Mode: 2
1. Addition & Subtraction
2. Multiplication & Division
Enter the computation method:
1
(a+jb) +/- (c+jb)
Enter the value (a,b,c,d):
a = 1
b = 2
c = 3
d = 4
Input Command:
Addition: add
Subtraction: sub
Enter the Desired Mode: add
Result = 4.00+j(6.00)
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```

Complex Number Subtraction

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 3
Mode: Complex
Rectangular ==> a+jb
Polar ==> r<(theta)
(Decimals are allowed)
Please Choose a Mode:
1. Conversion
2. Computation
Mode: 2
1. Addition & Subtraction
2. Multiplication & Division
Enter the computation method:
1
(a+jb) +/- (c+jb)
Enter the value (a,b,c,d):
a = 1
b = 2
c = 3
d = 4
Input Command:
Addition: add
Subtraction: sub
Enter the Desired Mode: sub
Result = -2.00+j(-2.00)
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```

Complex Number Multiplication

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 3
Mode: Complex
Rectangular ==> a+jb
Polar ==> r<(theta)
(Decimals are allowed)
Please Choose a Mode:
1.Conversion
2.Computation
Mode: 2
1. Addition & Substraction
2. Multiplication & Division
Enter the computation method:
2
(A<theta1) */ (B<theta2)
Enter the value (A,theta1,B,theta2):
3
90
2
45
Input Command:
Multiplication: mult
Division: div
Enter the Desired Mode: mult
Result = 6.00<(135.00)
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```

Complex Number Division

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 3
Mode: Complex
Rectangular ==> a+jb
Polar ==> r<(theta)
(Decimals are allowed)
Please Choose a Mode:
1.Conversion
2.Computation
Mode: 2
1. Addition & Substraction
2. Multiplication & Division
Enter the computation method:
2
(A<theta1) */ (B<theta2)
Enter the value (A,theta1,B,theta2):
3
90
2
45
Input Command:
Multiplication: mult
Division: div
Enter the Desired Mode: div
Result = 1.50<(45.00)
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```

Basic Addition

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 4
Mode: Basic calculator

Please Choose a Mode:
1. Addition and Subtraction
2. Multiplication and Division
3. Trigonometry
4. Logarithmic
Mode: 1

Mode: Addition and Subtraction

Maximum Operands: 2 (Decimals are allowed)
Input Format Example: '5.67 + 8.98'
1.23 + 4.56
= 5.79000
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```

Basic Subtraction

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 4
Mode: Basic calculator

Please Choose a Mode:
1. Addition and Subtraction
2. Multiplication and Division
3. Trigonometry
4. Logarithmic
Mode: 1

Mode: Addition and Subtraction

Maximum Operands: 2 (Decimals are allowed)
Input Format Example: '5.67 + 8.98'
1.23 - 4.56
= -3.33000
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```

Basic Multiplication

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 4
Mode: Basic calculator

Please Choose a Mode:
1. Addition and Subtraction
2. Multiplication and Division
3. Trigonometry
4. Logarithmic
Mode: 2
Mode: Multiplication and Division

Maximum Operands: 2 (Decimals are allowed)
Input Format Example: '5.67 / 8.98'
1.23 * 4.56
= 5.60880
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```

Basic Division

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 4
Mode: Basic calculator

Please Choose a Mode:
1. Addition and Subtraction
2. Multiplication and Division
3. Trigonometry
4. Logarithmic
Mode: 2
Mode: Multiplication and Division

Maximum Operands: 2 (Decimals are allowed)
Input Format Example: '5.67 / 8.98'
1.23 / 4.56
= 0.26974
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```


Trigonometry

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 4
Mode: Basic calculator

Please Choose a Mode:
1. Addition and Subtraction
2. Multiplication and Division
3. Trigonometry
4. Logarithmic
Mode: 3
Mode: Trigonometry

(Decimals are allowed)
Input Command:
Cos:cos      |Arc Cos:acos
Sin:sin      |Arc Sin:asin
Tan:tan      |Arc Tan:atan
Input Format Example: 'sin (98)'
sin (45)
= 0.70711
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```

Logarithmic

```
Command Prompt
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>a 4
Mode: Basic calculator

Please Choose a Mode:
1. Addition and Subtraction
2. Multiplication and Division
3. Trigonometry
4. Logarithmic
Mode: 4
Mode: Logarithmic

(Decimals are allowed)
Input Format Example: 'log (5)'
log (10)
= 1.00000
C:\Users\Debby\Documents\cpp\FINAL PROJECT\done>
```