**Task 1:**  
Enter the size of the array: 5

Enter 5 elements: 3 7 2 9 5

Sum: 26

Average: 5.2

Maximum value: 9

**Task2:**

Enter parameters for matrix: 2 2

Enter matrix elements:

1 2

3 4

Choose an operation:

1. Matrix Addition

2. Matrix Subtraction

3. Matrix Multiplication

4. Exit

1

Enter parameters for second matrix: 2 2

Enter matrix elements:

5 6

7 8

Result of Addition:

6 8

10 12

Choose an operation:

1. Matrix Addition

2. Matrix Subtraction

3. Matrix Multiplication

4. Exit

2

Enter parameters for second matrix: 2 2

Enter matrix elements:

5 6

7 8

Result of Subtraction:

4 4

4 4

Choose an operation:

1. Matrix Addition

2. Matrix Subtraction

3. Matrix Multiplication

4. Exit

3

Enter parameters for second matrix: 2 2

Enter matrix elements:

1 0

0 1

Result of Multiplication:

1 2

3 4

Choose an operation:

1. Matrix Addition

2. Matrix Subtraction

3. Matrix Multiplication

4. Exit

4

Exiting...  
  
  
**task3:**

Enter number of employees: 2

Menu:

1. Enter Employee Data

2. Display All Employees

3. Search Employee by ID

4. Exit

Enter your choice: 1

Enter employee ID: 101

Enter name: Alice

Enter department: HR

Enter salary: 50000

Enter employee ID: 102

Enter name: Bob

Enter department: IT

Enter salary: 60000

Menu:

1. Enter Employee Data

2. Display All Employees

3. Search Employee by ID

4. Exit

Enter your choice: 2

Employee ID: 101, Name: Alice, Department: HR, Salary: 50000

Employee ID: 102, Name: Bob, Department: IT, Salary: 60000

Menu:

1. Enter Employee Data

2. Display All Employees

3. Search Employee by ID

4. Exit

Enter your choice: 3

Enter employee ID to search: 102

Employee found:

Employee ID: 102, Name: Bob, Department: IT, Salary: 60000

Menu:

1. Enter Employee Data

2. Display All Employees

3. Search Employee by ID

4. Exit

Enter your choice: 3

Enter employee ID to search: 105

Employee not found!

Menu:

1. Enter Employee Data

2. Display All Employees

3. Search Employee by ID

4. Exit

Enter your choice: 4

Exiting the program.

**Task 4:**

Enter number of students: 2

Menu:

1. Enter Student Data

2. Calculate Averages

3. Assign Grades

4. Display Student Details

5. Exit

Enter your choice: 1

Enter name: Alice

Enter roll number: 101

Enter marks for 5 subjects: 95 87 78 92 88

Enter name: Bob

Enter roll number: 102

Enter marks for 5 subjects: 55 60 65 70 75

Menu:

1. Enter Student Data

2. Calculate Averages

3. Assign Grades

4. Display Student Details

5. Exit

Enter your choice: 2

Menu:

1. Enter Student Data

2. Calculate Averages

3. Assign Grades

4. Display Student Details

5. Exit

Enter your choice: 3

Menu:

1. Enter Student Data

2. Calculate Averages

3. Assign Grades

4. Display Student Details

5. Exit

Enter your choice: 4

Student 1 Details:

Name: Alice

Roll Number: 101

Marks: 95 87 78 92 88

Average: 88

Grade: B

Student 2 Details:

Name: Bob

Roll Number: 102

Marks: 55 60 65 70 75

Average: 65

Grade: D

Menu:

1. Enter Student Data

2. Calculate Averages

3. Assign Grades

4. Display Student Details

5. Exit

Enter your choice: 5

Exiting the program.  
 **task 5:**

hello world

Concatenation: helloworld

Compression of first string: helo

Length of first string: 5

Length of second string: 5

Task 6:

Enter number of books: 3

Menu:

1. Enter Books Data

2. Add a New Book

3. Remove a Book

4. Search for a Book

5. Display All Books

6. Exit

Enter your choice: 1

Enter title of book 1: Book1

Enter author of book 1: Author1

Enter book ID of book 1: 101

Enter availability (y/n) of book 1: y

Enter title of book 2: Book2

Enter author of book 2: Author2

Enter book ID of book 2: 102

Enter availability (y/n) of book 2: n

Enter title of book 3: Book3

Enter author of book 3: Author3

Enter book ID of book 3: 103

Enter availability (y/n) of book 3: y

Menu:

1. Enter Books Data

2. Add a New Book

3. Remove a Book

4. Search for a Book

5. Display All Books

6. Exit

Enter your choice: 2

Enter title of new book: Book4

Enter author of new book: Author4

Enter book ID of new book: 104

Enter availability (y/n) of new book: y

Menu:

1. Enter Books Data

2. Add a New Book

3. Remove a Book

4. Search for a Book

5. Display All Books

6. Exit

Enter your choice: 4

Enter the book ID you want to search: 102

Book found!

Title: Book2

Author: Author2

Book ID: 102

Availability: Not Available

Menu:

1. Enter Books Data

2. Add a New Book

3. Remove a Book

4. Search for a Book

5. Display All Books

6. Exit

Enter your choice: 3

Enter the book ID you want to remove: 101

Book removed successfully.

Menu:

1. Enter Books Data

2. Add a New Book

3. Remove a Book

4. Search for a Book

5. Display All Books

6. Exit

Enter your choice: 5

Displaying all books:

Book 1:

Title: Book2

Author: Author2

Book ID: 102

Availability: Not Available

Book 2:

Title: Book3

Author: Author3

Book ID: 103

Availability: Available

Book 3:

Title: Book4

Author: Author4

Book ID: 104

Availability: Available

Menu:

1. Enter Books Data

2. Add a New Book

3. Remove a Book

4. Search for a Book

5. Display All Books

6. Exit

Enter your choice: 6

Exiting the program.

Task 7:

Choose an option:

1. Reverse an array

2. Swap two numbers

2

Enter two numbers: 5 10

Before swap: 5 10

After swap: 10 5  
  
task 8:

Enter number of products: 1

Menu:

1. Enter Products Data

2. Add a New Product

3. Remove a Product

4. Search for a Product

5. Display All Products

6. Exit

Enter your choice: 1

Enter name of product 1: Pencil

Enter product ID of product 1: 201

Enter quantity of product 1: 20

Enter price of product 1: 1.0

Menu:

1. Enter Products Data

2. Add a New Product

3. Remove a Product

4. Search for a Product

5. Display All Products

6. Exit

Enter your choice: 2

Enter name of new product: Eraser

Enter product ID of new product: 202

Enter quantity of new product: 15

Enter price of new product: 0.5

Menu:

1. Enter Products Data

2. Add a New Product

3. Remove a Product

4. Search for a Product

5. Display All Products

6. Exit

Enter your choice: 4

Enter the product ID you want to search: 202

Product found!

Name: Eraser

Product ID: 202

Quantity: 15

Price: 0.5

Menu:

1. Enter Products Data

2. Add a New Product

3. Remove a Product

4. Search for a Product

5. Display All Products

6. Exit

Enter your choice: 5

Displaying all products:

Product 1:

Name: Pencil

Product ID: 201

Quantity: 20

Price: 1

Product 2:

Name: Eraser

Product ID: 202

Quantity: 15

Price: 0.5

Total value of the inventory is: 22.5

Task 9 :

Enter number of students: 3

Menu:

1. Enter Students Data

2. Add a New Student

3. Remove a Student

4. Search for a Student

5. Display All Students

6. Exit

Enter your choice: 1

Enter name of student 1: John

Enter roll number of student 1: 101

Enter total marks of student 1: 85

Enter name of student 2: Alice

Enter roll number of student 2: 102

Enter total marks of student 2: 90

Enter name of student 3: Bob

Enter roll number of student 3: 103

Enter total marks of student 3: 78

Menu:

1. Enter Students Data

2. Add a New Student

3. Remove a Student

4. Search for a Student

5. Display All Students

6. Exit

Enter your choice: 2

Displaying all students:

Student 1:

Name: John

Roll Number: 101

Total Marks: 85

Student 2:

Name: Alice

Roll Number: 102

Total Marks: 90

Student 3:

Name: Bob

Roll Number: 103

Total Marks: 78

Student with highest marks is Alice with marks: 90

Menu:

1. Enter Students Data

2. Add a New Student

3. Remove a Student

4. Search for a Student

5. Display All Students

6. Exit

Enter your choice: 6

Exiting the program.

Task 10:  
1 4

2 5

3 6