```
# Take input for number of elements
n = int(input("Enter the number of elements: "))

# Take input for the elements
numbers = []
for i in range(n):
    num = int(input("Enter element: "))
    numbers.append(num)

# Calculate the product using a loop
product = 1
for num in numbers:
    product *= num

# Print the final product
print("Product of all elements:", product)
```

```
Enter the number of elements: 5
Enter element: 1
Enter element: 2
Enter element: 3
Enter element: 4
Enter element: 5
Product of all elements: 120
```

```
# Taking input from user
N = int(input("Enter the number of elements in the array: "))  # Number of elements
arr = []  # Initializing the array

# Reading the N elements into the array
print(f"Enter {N} elements:")
for _ in range(N):
    arr.append(int(input("Enter element: ")))

X = int(input("Enter the position (1-based index) where you want to insert: "))  # Position to insert
Y = int(input("Enter the value to insert: "))  # Value to insert

# Convert 1-based index to 0-based index and insert Y at X-1
arr.insert(X - 1, Y)

# Printing the updated array
print("Updated array after insertion:")
print(arr)
```

```
Enter the number of elements in the array: 5
Enter 5 elements:
Enter element: 1
Enter element: 2
Enter element: 3
Enter element: 4
Enter element: 6
Enter the position (1-based index) where you want to insert: 5
Enter the value to insert: 5
Updated array after insertion:
1 2 3 4 5 6
```

```
N = int(input("Enter the numbers of element: "))
arr = []
for i in range(N):
    arr.append(int(input("Enter element "+ str(i+1) + ": ")))
temp = arr[N-1]  # Store last element in temp variable to put at 0 index later.
for i in range(N-1, 0, -1): # The -1 step ensures that the loop moves backward.Forward will overwrite.
    arr[i] = arr[i - 1]  # Move each element right
arr[0] = temp # Storing temp variable at 0 index
print(arr)
```

```
Enter the numbers of element: 5
Enter element 1: 2
Enter element 2: 3
Enter element 3: 4
Enter element 4: 5
Enter element 5: 1
[1, 2, 3, 4, 5]
```

```
# Another way of doing shifting of last element at 0 index.
N = int(input("Enter the numbers of element: "))
arr = []
for i in range(N):
    arr.append(int(input("Enter element "+ str(i+1) + ": ")))
ele = arr.pop() # It can be written in 1 line as well. **arr.insert(0, arr.pop())**
```

```
arr.insert(0, ele)
print(arr)
```

```
Enter the numbers of element: 6
Enter element 1: 2
Enter element 2: 3
Enter element 3: 4
Enter element 4: 5
Enter element 5: 6
Enter element 6: 1
[1, 2, 3, 4, 5, 6]
```

```
N = int(input("Enter numbers of element: ")) # Enter numbers of element
arr = []
for i in range(N):
    arr.append(int(input("Enter element "+ str(i+1) + ": ")))
arr.reverse() # Reversing all elements in the list.
print("Reversed list: ", arr)
```

```
Enter numbers of element: 5
Enter element 1: 5
Enter element 2: 4
Enter element 3: 3
Enter element 4: 2
Enter element 5: 1
Reversed list:  [1, 2, 3, 4, 5]
```

```
N = int(input("Enter number of elements: "))
arr = []
for i in range(N):
    arr.append(int(input(f"Enter element {i+1}: ")))
new_arr = []
for i in arr:
    if i < 0: # if i >= 0, in case of removing negative number.
        new_arr.append(i)
print(new_arr)
```

```
Enter number of elements: 5
Enter element 1: -1
Enter element 2: 2
Enter element 3: -3
Enter element 4: 4
Enter element 5: -5
[-1, -3, -5]
```

```
N = int(input("Enter the numbers of the element: "))
arr = []
for i in range(N):
    arr.append(int(input(f"Enter the element {i+1}: ")))
arr1 = []
for i in arr:
    if i % 5 == 0 and i % 7 == 0:
        arr1.append(i)
print("Elements divisible by 5 and 7: ", arr1)
```

```
Enter the numbers of the element: 5
Enter the element 1: 10
Enter the element 2: 35
Enter the element 3: 70
Enter the element 4: 90
Enter the element 5: 105
Elements divisible by 5 and 7:  [35, 70, 105]
```

```
# Even index runs after sorting
runs = [12, 76, 45, 75, 74, 34, 101, 102]
runs.sort()
result = []
for i in range(len(runs)):
    if i % 2 == 0:
        result.append(runs[i])
print(result)
```

```
[12, 45, 75, 101]
```

```
matrix = []
print("Enter the elements of the 3x3 matrix row by row:")

for i in range(3):
    row = []
    for j in range(3):
        num = int(input(f"Enter element at position [{i+1},{j+1}]: "))
        row.append(num)
```

```
    matrix.append(row)

print("Matrix:")
for row in matrix:
    print(row)
```

```
Enter the elements of the 3x3 matrix row by row:
Enter element at position [1,1]: 1
Enter element at position [1,2]: 2
Enter element at position [1,3]: 3
Enter element at position [2,1]: 4
Enter element at position [2,2]: 5
Enter element at position [2,3]: 6
Enter element at position [3,1]: 7
Enter element at position [3,2]: 8
Enter element at position [3,3]: 9
Matrix:
[1, 2, 3]
[4, 5, 6]
[7, 8, 9]
```

```
# Input Matrix 1
print("Enter 9 elements for Matrix 1:")
matrix1 = []
for i in range(3):
    row = []
    for j in range(3):
        num = int(input(f"Enter element [{i+1},{j+1}]: "))
        row.append(num)
    matrix1.append(row)

print("\nMatrix 1:")
for row in matrix1:
    print(row)

# Input Matrix 2
print("\nEnter 9 elements for Matrix 2:")
matrix2 = []
for i in range(3):
    row = []
    for j in range(3):
        num = int(input(f"Enter element [{i+1},{j+1}]: "))
        row.append(num)
    matrix2.append(row)

print("\nMatrix 2:")
for row in matrix2:
    print(row)

# Add Matrices
result = []
for i in range(3):
    row = []
    for j in range(3):
        row.append(matrix1[i][j] + matrix2[i][j])
    result.append(row)

print("\nSum of Matrix 1 and Matrix 2:")
for row in result:
    print(row)
```

```
Enter 9 elements for Matrix 1:
Enter element [1,1]: 5
Enter element [1,2]: 1
Enter element [1,3]: 2
Enter element [2,1]: 3
Enter element [2,2]: 5
Enter element [2,3]: 5
Enter element [3,1]: 6
Enter element [3,2]: 7
Enter element [3,3]: 8

Matrix 1:
[5, 1, 2]
[3, 5, 5]
[6, 7, 8]

Enter 9 elements for Matrix 2:
Enter element [1,1]: 9
Enter element [1,2]: 5
Enter element [1,3]: 4
Enter element [2,1]: 5
Enter element [2,2]: 2
Enter element [2,3]: 8
Enter element [3,1]: 9
```

```
Enter element [3,2]: 7
Enter element [3,3]: 5

Matrix 2:
[9, 5, 4]
[5, 2, 8]
[9, 7, 5]

Sum of Matrix 1 and Matrix 2:
[14, 6, 6]
[8, 7, 13]
[15, 14, 13]
```

```
# Get matrix dimensions from the user
rows = int(input("Enter the number of rows: "))
cols = int(input("Enter the number of columns: "))

# Initialize matrix
matrix = []
max_values = []

print("Enter the elements one by one:")

# Taking input for the matrix
for i in range(rows):
    row = []
    for j in range(cols):
        num = int(input(f"Enter element for Row {i+1}, Column {j+1}: "))
        row.append(num)
    matrix.append(row)

# Find the largest element in each row and store it in max_values
for i in range(rows):
    max_value = matrix[i][0]  # Assume first element is the largest
    for j in range(1, cols):
        if matrix[i][j] > max_value:
            max_value = matrix[i][j]
    max_values.append(max_value)

# Print the largest elements as a list
print("Largest elements in each row:", max_values)
```

```
Enter the number of rows: 2
Enter the number of columns: 2
Enter the elements one by one:
Enter element for Row 1, Column 1: 3
Enter element for Row 1, Column 2: 4
Enter element for Row 2, Column 1: 5
Enter element for Row 2, Column 2: 6
Largest elements in each row: [4, 6]
```

```
# Get matrix dimensions from the user
rows = int(input("Enter the number of rows: "))
cols = int(input("Enter the number of columns: "))

# Initialize matrix
matrix = []

print("Enter the elements one by one:")

# Taking input for the matrix
for i in range(rows):
    row = []
    for j in range(cols):
        num = int(input(f"Enter element for Row {i+1}, Column {j+1}: "))
        row.append(num)
    matrix.append(row)
print("Largest element in each rows:", [max(element) for element in matrix]) # Another way to find largest element in the list
```

```
Enter the number of rows: 2
Enter the number of columns: 2
Enter the elements one by one:
Enter element for Row 1, Column 1: 1
Enter element for Row 1, Column 2: 2
Enter element for Row 2, Column 1: 3
Enter element for Row 2, Column 2: 4
Largest element in each rows: [2, 4]
```

```
run = [1, 2, 0, 3]

print([run.index(i) for i in range(len(run))])
```

```
[2, 0, 1, 3]
```

```
N = int(input("Enter the numbers of the element: "))
arr = []
for i in range(N):
    arr.append(int(input(f"Enter the element {i+1}: ")))
n = len(arr)
inverse_list = [0] * n
for i in range(n):
    inverse_list[arr[i]] = i # Use the value run[i] as the index in the inverse array.
                             # Assign the current index i as the value in the inverse array.
print(inverse_list)
```

```
Enter the numbers of the element: 5
 Enter the element 1: 4
 Enter the element 2: 3
 Enter the element 3: 0
 Enter the element 4: 1
 Enter the element 5: 2
 [2, 3, 4, 1, 0]
```

```
# Get matrix dimensions from the user
rows = int(input("Enter the number of rows: "))
cols = int(input("Enter the number of columns: "))

# Initialize matrix
matrix = []

print("Enter the elements one by one:")

# Taking input for the matrix
for i in range(rows):
    row = []
    for j in range(cols):
        num = int(input(f"Enter element for Row {i+1}, Column {j+1}: "))
        row.append(num)
    matrix.append(row)
result = []
for i in range(cols):
    row = []
    for j in range(rows):
        row.append(matrix[j][i])
    result.append(row)
print("Transposed matrix:", result)
```

```
Enter the number of rows: 3
 Enter the number of columns: 2
 Enter the elements one by one:
 Enter element for Row 1, Column 1: 1
 Enter element for Row 1, Column 2: 2
 Enter element for Row 2, Column 1: 3
 Enter element for Row 2, Column 2: 4
 Enter element for Row 3, Column 1: 5
 Enter element for Row 3, Column 2: 6
 Transposed matrix: [[1, 3, 5], [2, 4, 6]]
```

```
# Sum of columns
list1 = [[1, 2, 3,], [4, 5, 12], [9, 7, 2]]
column_sum = []
for i in range(len(list1)):
    for j in range(len(list1[0])):
        if i == 0:
            column_sum.append(list1[i][j])
        else:
            column_sum[j] += list1[i][j]
print(column_sum)
```

```
[14, 14, 17]
```

```
runs = [[1, 2, 3], [4, 5, 6], [7, 8, 9]]
n = len(runs)
print([sum(runs[i][j] for i in range(n)) for j in range(n)])
```

```
[12, 15, 18]
```