Subject code	:	CEUC102	Semester	:	2	Academic Year	:	2024-2025
Subject name	:	Programming with C++						
Name	:	Jay Shirishbhai Patel						
ID No.	:	24CE081						

Output 1.1	
| | ```
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 1
-------------------------
Enter Holder Name : Jay
Enter Account Number : 1
Enter your Balance : 1200
-------------------------
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 2
Enter Account no for check : 1
-------------------------
Enter your amount that you want to deposit : 200
Your new balance is : 1400
-------------------------
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 3
Enter product ID for check : 1
-------------------------
``` |
| | ```
Enter your amount that you want to withdraw : 100
New Balance : 1300
-------------------------
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 4
Enter product ID for check : 1
-------------------------
Holder Name : Jay
Number : 1
CurrentBalance : 1300
-------------------------
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 5
Thank you, Exit.
``` |

Output 1.2	
| | ```
Enter '1' for Add Product ,
Enter '2' for Update Quantity ,
Enter '3' for Display Product details ,
Enter '4' for Display total bill .
Enter '5' for Exit .
Enter your choice: 1
--------------------------
Enter ID : 1
Enter name : pencil
Quantity : 1
Enter price : 10
--------------------------
Enter '1' for Add Product ,
Enter '2' for Update Quantity ,
Enter '3' for Display Product details ,
Enter '4' for Display total bill .
Enter '5' for Exit .
Enter your choice: 1
--------------------------
Enter ID : 2
Enter name : pen
Quantity : 1
Enter price : 15
--------------------------
``` |
| | ```
Enter '1' for Add Product ,
Enter '2' for Update Quantity ,
Enter '3' for Display Product details ,
Enter '4' for Display total bill .
Enter '5' for Exit .
Enter your choice: 2
Enter product ID for check : 2
Enter the product quantity for update : 2
Updated Quantity : 3
--------------------------
Enter '1' for Add Product ,
Enter '2' for Update Quantity ,
Enter '3' for Display Product details ,
Enter '4' for Display total bill .
Enter '5' for Exit .
Enter your choice: 3
Enter product ID for check : 1
--------------------------
Product ID : 1
Product Name : pencil
Product Quantity : 1
Product total price : 10
--------------------------
``` |

```
Enter '1' for Add Product ,
Enter '2' for Update Quantity ,
Enter '3' for Display Product details ,
Enter '4' for Display total bill .
Enter '5' for Exit .
Enter your choice: 4
--------------------------
Product ID : 1
Product Name : pencil
Product Quantity : 1
Product total price : 10
--------------------------
--------------------------
Product ID : 2
Product Name : pen
Product Quantity : 3
Product total price : 45
--------------------------
Total Bill Amount: 55

Enter '1' for Add Product ,
Enter '2' for Update Quantity ,
Enter '3' for Display Product details ,
Enter '4' for Display total bill .
Enter '5' for Exit .
Enter your choice: 5
Thank you, Exit.
```

Output 2.1	
| | ```
--- MENU ---
1. Add Data
2. Update Data
3. Display Data
4. Exit.
Enter choice: 1
Enter length : 4
Enter width : 5

--- MENU ---
1. Add Data
2. Update Data
3. Display Data
4. Exit.
Enter choice: 2
Enter Plot No. to update (1 to 1): 1
Enter new length : 6
Enter new width : 5
``` |
| | ```
--- MENU ---
1. Add Data
2. Update Data
3. Display Data
4. Exit.
Enter choice: 3
Enter Plot No. to display (1 to 1): 1
--------------------------
Length: 6
Width: 5
Area: 30
Perimeter: 22
--------------------------

--- MENU ---
1. Add Data
2. Update Data
3. Display Data
4. Exit.
Enter choice: 4
Thank you,exit.
``` |

Output 2.2	
| | ```
=========== MENU ===========
1. Show default student record
2. Add student records
3. Display all student records
4. Exit
Enter your choice (1-4): 1

--- Default Student Record ---
------------------------------------
Roll Number   : 0
Name          : N/A
Subject Marks : 0, 0, 0
Average Marks : 0
------------------------------------

=========== MENU ===========
1. Show default student record
2. Add student records
3. Display all student records
4. Exit
Enter your choice (1-4): 2
``` |
| | ```
Enter the number of students you want to add (1 to 100): 2

--- Enter details for Student 1 ---
Roll Number     : 1
Name            : Jay
Marks (m1 m2 m3) : 99 98 96

--- Enter details for Student 2 ---
Roll Number     : 2
Name            : Max
Marks (m1 m2 m3) : 50 66 67

=========== MENU ===========
1. Show default student record
2. Add student records
3. Display all student records
4. Exit
Enter your choice (1-4): 3
``` |

```
=== Displaying Student Records ===

Student 1:
------------------------------------
Roll Number   : 1
Name          : Jay
Subject Marks : 99, 98, 96
Average Marks : 97.6667
------------------------------------

Student 2:
------------------------------------
Roll Number   : 2
Name          : Max
Subject Marks : 50, 66, 67
Average Marks : 61
------------------------------------

========== MENU ===========
1. Show default student record
2. Add student records
3. Display all student records
4. Exit
Enter your choice (1-4): 4
```

Output 2.3	

```
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 1
--------------------------
Enter Holder Name : Jay
Enter Account Number : 1
Enter your Balance : 1200
--------------------------
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 3
Enter product ID for check : 1
--------------------------
Enter your amount that you want to withdraw : 50
New Balance : 1150
--------------------------
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 2
Enter Account no for check : 1
```

```
--------------------------
Enter your amount that you want to deposit : 2000
Your new balance is : 3150
--------------------------
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 4
Enter product ID for check : 1
--------------------------
Holder Name : Jay
Number : 1
CurrentBalance : 3150
--------------------------
Enter '1' for create Account.
Enter '2' for deposit money.
Enter '3' for withdraw money.
Enter '4' for Display Details.
Enter '5' for Exit.
Enter your choice : 5
Thank you, Exit.
```

| Output 2.4 | ```
======= INVENTORY MENU =======
1. Add Item.
2. Increase Quantity.
3. Decrease Quantity.
4. Display Item Details.
5. Exit.
.==============================
Enter your choice: 1

--- Add New Item ---
Enter item ID       : 1
Enter item's name   : Pen
Enter price of item : 15
Item added successfully!
----------------------------

======= INVENTORY MENU =======
1. Add Item.
2. Increase Quantity.
3. Decrease Quantity.
4. Display Item Details.
5. Exit.
.==============================
Enter your choice: 2

Enter item ID to increase quantity: 1

--- Increase Quantity ---
Enter quantity to be increased: 5
Item's Quantity is successfully increased!
----------------------------
``` |

```
======= INVENTORY MENU =======
1. Add Item.
2. Increase Quantity.
3. Decrease Quantity.
4. Display Item Details.
5. Exit.
.==============================
Enter your choice: 3

Enter item ID to decrease quantity: 1

--- Decrease Quantity ---
Enter quantity to be decreased: 2
Item's Quantity is successfully decreased!
---------------------------

======= INVENTORY MENU =======
1. Add Item.
2. Increase Quantity.
3. Decrease Quantity.
4. Display Item Details.
5. Exit.
.==============================
Enter your choice: 4

Enter item ID to display details: 1

--- Item Details ---
ID       : 1
Name     : Pen
Price    : 15
Quantity : 4
---------------------------
```

```
======= INVENTORY MENU =======
1. Add Item.
2. Increase Quantity.
3. Decrease Quantity.
4. Display Item Details.
5. Exit.
.==============================
Enter your choice: 5

Thank you for using Inventory System!
```

Output 2.5	

```
========== Loan Management Menu ==========
1. Add Account Details
2. Display Account Details by ID
3. Exit.
Enter your choice (1 or 3): 1

----- Enter Loan Account Details -----
Enter Loan ID          : 1
Enter Name             : Jay
Enter Loan Amount      : 20000
Enter Annual Interest (%) : 8
Enter Loan Tenure (months): 12
Account details added successfully!

========== Loan Management Menu ==========
1. Add Account Details
2. Display Account Details by ID
3. Exit.
Enter your choice (1 or 3): 1

----- Enter Loan Account Details -----
Enter Loan ID          : 2
Enter Name             : Patel
Enter Loan Amount      : 50000
Enter Annual Interest (%) : 8
Enter Loan Tenure (months): 24
Account details added successfully!
```

```
========== Loan Management Menu ==========
1. Add Account Details
2. Display Account Details by ID
3. Exit.
Enter your choice (1 or 3): 2

Enter Loan ID to display details: 2

========== Loan Account Details ==========
Loan ID      : 2
Name         : Patel
Loan Amount  : 50000
Annual Rate  : 8%
Loan Tenure  : 24 months
Monthly EMI  : 2261.37
=========================================

========== Loan Management Menu ==========
1. Add Account Details
2. Display Account Details by ID
3. Exit.
Enter your choice (1 or 3): 3
Exit,Thank you.
```

Output 3.1	
| | ```
================ Employee Management System ================
1. Add Employee Data
2. Display Employee Data
3. Exit
===========================================================
Enter your choice: 1
Enter number of employees to add (max remaining: 20): 2

Enter employee ID:1
Enter employee name:Jay
Enter employee salary:20000
Enter employee bonus if he/she got specific bonus otherwise enter 0 for default bonus:0

Enter employee ID:2
Enter employee name:Patel
Enter employee salary:50000
Enter employee bonus if he/she got specific bonus otherwise enter 0 for default bonus:2500

================ Employee Management System ================
1. Add Employee Data
2. Display Employee Data
3. Exit
===========================================================
Enter your choice: 2

Enter employee ID for display:1
``` |
| | ```
================ Employee Details ================
ID           : 1
Name         : Jay
Basic Salary : 20000
Bonus        : 1000
Total Salary : 21000
=================================================


================ Employee Management System ================
1. Add Employee Data
2. Display Employee Data
3. Exit
===========================================================
Enter your choice: 2

Enter employee ID for display:2

================ Employee Details ================
ID           : 2
Name         : Patel
Basic Salary : 50000
Bonus        : 2500
Total Salary : 52500
=================================================
``` |
| | ```
================ Employee Management System ================
1. Add Employee Data
2. Display Employee Data
3. Exit
===========================================================
Enter your choice: 3
Thank you,Exit.
``` |

| **Output 3.2** | ```
Enter the number of elements in the array: 5
Enter 5 elements:
Element 1: 5
Element 2: 25
Element 3: 56
Element 4: 8
Element 5: 99

=== Result ===
Recursive Sum: 193
Iterative Sum: 193
PS D:\C++\oop\OOPS\3.()> █
``` |
| **Output 3.3** | ```
========================================
   Welcome to Community Bank System
========================================
1. Add New Account
2. Transfer Money
3. Show Total Accounts
4. Exit
========================================

Select an Option: 1

--- Add New Account ---
Enter Account Number        : 1
Enter Account Holder's Name : Jay
Enter Initial Balance       : 20000
Account added successfully!

Select an Option: 1

--- Add New Account ---
Enter Account Number        : 2
Enter Account Holder's Name : Patel
Enter Initial Balance       : 5200
Account added successfully!

Select an Option: 2

--- Money Transfer ---
Enter Sender's Account Number   : 1
Enter Receiver's Account Number : 2
Enter Amount to Transfer        : 200
``` |

```
Transfer successful!

--- Transaction Summary ---
--- Account Details ---
Account Number        : 1
Account Holder's Name : Jay
Current Balance       : 19800

--- Account Details ---
Account Number        : 2
Account Holder's Name : Patel
Current Balance       : 5400

Select an Option: 3

Total Accounts Created: 2

Select an Option: 4

Thank you,exit.
```

Output 3.4	

```
==============================
Select Data Type to Process:
1. Integer
2. Float
3. Character
4. Exit
==============================
Enter your choice: 1

Enter integers (enter 0 to stop):
25
4
0

--- Input Summary ---
Original elements: 25 - 4
--- Max Value ---
Maximum element: 25
--- Reversed Collection ---
Reversed elements: 4 - 25

==============================
Select Data Type to Process:
1. Integer
2. Float
3. Character
4. Exit
==============================
Enter your choice: 2
```

```
Enter your choice: 2

Enter float values (enter 0 to stop):
3.25
5.5
9.99
0

--- Input Summary ---
Original elements: 3.25 - 5.5 - 9.99
--- Max Value ---
Maximum element: 9.99
--- Reversed Collection ---
Reversed elements: 9.99 - 5.5 - 3.25

==============================
Select Data Type to Process:
1. Integer
2. Float
3. Character
4. Exit
==============================
Enter your choice: 3

Enter characters (enter '!' to stop):
A
c
d
!
```

```
--- Input Summary ---
Original elements: A - c - d
--- Max Value ---
Maximum element: d
--- Reversed Collection ---
Reversed elements: d - c - A

==============================
Select Data Type to Process:
1. Integer
2. Float
3. Character
4. Exit
==============================
Enter your choice: 4

Thank you,exit.
```

Output 3.5	Enter number: 6982 Enter the number of repetitions: 5 Super digit: 8

Output 4.1	Enter radius: 25 Area of circle: 1962.5 Want to add more circle? (1 for yes/0 for no) Enter your choice: 1 Enter radius: 6 Area of circle: 113.04 Want to add more circle? (1 for yes/0 for no) Enter your choice: 0

Output 4.2	Enter name: Jay Enter age: 18 Enter employee Id: 1 Enter Department: CE Do you want to add more Employee?(1 for yes/0 for no) Enter your choice: 1 Enter name: Patel Enter age: 20 Enter employee Id: 2 Enter Department: CE Do you want to add more Employee?(1 for yes/0 for no) Enter your choice: 0 Displaying details of employee EMPLOYEE 1 Name: Jay Age: 18 Employee ID: 1 Department: CE EMPLOYEE 2 Name: Patel Age: 20 Employee ID: 2 Department: CE

Output 4.3	
| | ```
Enter details for car 1:
Enter Car Name: Volvo
Enter Fuel Type: diesel
Enter Brand Name: Volvo
Do you want to add another car? (y/n): y

Enter details for car 2:
Enter Car Name: XUV500
Enter Fuel Type: petrol
Enter Brand Name: XUV
Do you want to add another car? (y/n): n

Displaying all car details:

--- Car Details ---
Car Name: Volvo
Fuel Type: diesel
Brand Name: Volvo

--- Car Details ---
Car Name: XUV500
Fuel Type: petrol
Brand Name: XUV
``` |

Output 4.4	
| | ```
Enter 1 to create saving account
Enter 2 to create current account
Enter your choice: 1
Enter account number: 1
Enter initial balance: 10200
Enter interest rate: 8
Saving account created successfully!
Enter 1 to Deposit amount
Enter 2 to withdraw amount
Enter 3 to undo last transaction
Enter 0 to exit
Enter your choice: 1
Enter amount to deposit: 200
Amount 200 deposited successfully!
Current balance: 10400
Enter 1 to Deposit amount
Enter 2 to withdraw amount
Enter 3 to undo last transaction
Enter 0 to exit
Enter your choice: 2
Enter amount to withdraw: 400
Amount 400 withdrawn successfully!
Current balance: 10000
``` |
| | ```
Enter 1 to Deposit amount
Enter 2 to withdraw amount
Enter 3 to undo last transaction
Enter 0 to exit
Enter your choice: 3
Undo done and current balance: 10400
Enter 1 to Deposit amount
Enter 2 to withdraw amount
Enter 3 to undo last transaction
Enter 0 to exit
Enter your choice: 0
Thank you!
``` |

| Output 4.5 | ```
Enter 1 for UG student and 2 for PG student : 1
Enter the name of student : Jay
Enter the marks of 3 subjects : 98 58 88
The average of 3 subjects : 81.3333
----------------------------------------------------
The name of student : Jay
The marks of 3 subjects : 98,58,88
The student is pass
``` |
| --- | --- |

| Output 5.1 | ```
PS D:\C++\oop\OOPS> cd "d:\C++\oop\OOPS\5.()\" ; i
Enter two integers: 5 2
Sum: 7
Enter two float numbers: 5.3 7.55
Sum: 12.85
Enter one integer and one float: 5 7.8
Sum: 12.8
PS D:\C++\oop\OOPS\5.()> ▌
``` |
| --- | --- |

| Output 5.2 | ```
PS D:\C++\oop\OOPS\5.()> cd "d:\C++\oop\OOPS\5.()\" ; i
Enter first complex number (real and imaginary): 5 2
Enter second complex number (real and imaginary): 8 6
Sum: 13+8i
Difference: -3-4i
``` |
| --- | --- |

Output 5.3	
| | ```
PS D:\C++\oop\OOPS\5.()> cd "d:\C++\oop\OO
Enter x and y: 5 8
Enter x and y: 2 3
Point 1: (5,8)
Point 2: (2,3)
Addition (p1+p2): (7,11)
Negation of p1: (-5,-8)
p1 and p2 are not equal
``` |

Output 5.4	
| | ```
1.Celsius to Fahrenheit
2.Fahrenheit to Celsius
3.Exit
Enter: 1
Celsius: 27
Fahrenheit: 80.6F

1.Celsius to Fahrenheit
2.Fahrenheit to Celsius
3.Exit
Enter: 2
Fahrenheit: 300
Celsius: 148.889C

1.Celsius to Fahrenheit
2.Fahrenheit to Celsius
3.Exit
Enter: 3
PS D:\C++\oop\OOPS\5.()>
``` |
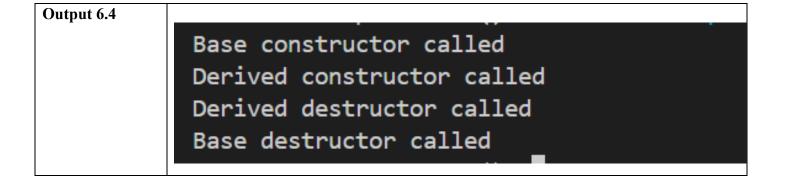
| **Output 5.5** | ```
Enter 1 for rectangle
Enter 2 for circle
Enter 0 to exit
Enter your choice: 1
Enter length and breadth of rectangle: 20 12
Area of rectangle is: 240

Enter 1 for rectangle
Enter 2 for circle
Enter 0 to exit
Enter your choice: 2
Enter radius of circle: 10
Area of cicle is: 314

Enter 1 for rectangle
Enter 2 for circle
Enter 0 to exit
Enter your choice: 0

Thank you!
``` |

Output 6.1	
| | ```
1. Insert value
2. Delete by index
3. Display array
4. Exit
Enter your choice: 1
Enter value to insert: 20

1. Insert value
2. Delete by index
3. Display array
4. Exit
Enter your choice: 3
Current array: 20

1. Insert value
2. Delete by index
3. Display array
4. Exit
Enter your choice: 2
Enter index to delete: 0

1. Insert value
2. Delete by index
3. Display array
4. Exit
Enter your choice: 3
Array is empty.

1. Insert value
2. Delete by index
3. Display array
4. Exit
Enter your choice: 4
``` |

| Output 6.2 | ```
Enter starting X coordinate: 2
Enter starting Y coordinate: 5
Point is at (2,5)
Enter value to move in X direction: 3
Enter value to move in Y direction: 8
Point is at (5,13)
``` |
|---|---|

| Output 6.3 | ```
Enter the size of the first array: 2
Enter the size of the second array: 5
Enter elements of the first array: 5 10
Enter elements of the second array: 2 3 6 8 99
Merged and sorted array: 2 3 5 6 8 10 99
``` |
|---|---|

| Output 6.4 | ```
Base constructor called
Derived constructor called
Derived destructor called
Base destructor called
``` |
|---|---|

| Output 7.1 | ```
Enter your string: Hey ! My name is Jay . Jay Patel .
!: 1
.: 2
Hey: 1
Jay: 2
My: 1
Patel: 1
is: 1
name: 1
``` |
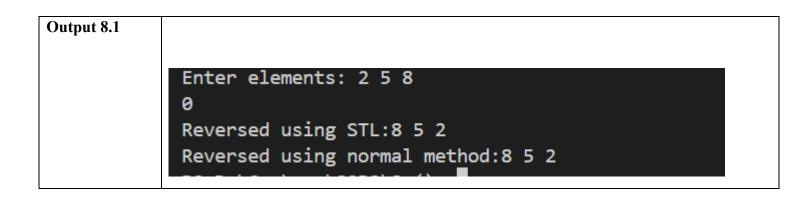|---|---|

| Output 7.2 | ```
 File content:
 Hello! This is Jay Patel.

 --- Statistics ---
 Number of characters: 26
 Number of words: 6
 Number of lines: 1
 PS D:\C++\oop\OOPS\7.()>
``` |
|---|---|

Output 7.3	
| | ```
--- MENU ---
1. Add Item
2. View Inventory
3. Search Item
4. Exit
Choose option:1
Enter item name:Pen
Enter quantity:2
Enter price:10
Item added successfully!


--- MENU ---
1. Add Item
2. View Inventory
3. Search Item
4. Exit
Choose option:1
Enter item name:Pencil
Enter quantity:3
Enter price:5
Item added successfully!


--- MENU ---
1. Add Item
2. View Inventory
3. Search Item
4. Exit
Choose option:2
``` |

```
--- Inventory ---
Name:Pen
Quantity:2
Price:10
---------------------
Name:Pencil
Quantity:3
Price:5
---------------------

--- MENU ---
1. Add Item
2. View Inventory
3. Search Item
4. Exit
Choose option:3
Enter item name to search:Pen

Item found:
Name:Pen
Quantity:2
Price:10
---------------------

--- MENU ---
1. Add Item
2. View Inventory
3. Search Item
4. Exit
Choose option:4
Thank You!
```

| **Output 7.4-5** | ```
Enter student's name: Jay
Enter marks for Subject 1: 98
Enter marks for Subject 2: 88
Enter marks for Subject 3: 87
Enter tuition fee: 150000

Do you want to enter another student? (y/n): y
Enter student's name: You
Enter marks for Subject 1: 66
Enter marks for Subject 2: 55
Enter marks for Subject 3: 35
Enter tuition fee: 157777

Do you want to enter another student? (y/n): n

Student report generated successfully in 'students.txt'!


Name                Grade1    Grade2    Grade3    Tuition Fee
-----------------------------------------------------------------
Jay                 A         B         B         150000.00
You                 D         F         F         157777.00
``` |

| **Output 8.1** | ```
Enter elements: 2 5 8
0
Reversed using STL:8 5 2
Reversed using normal method:8 5 2
``` |

Output 8.2	Enter string: Jay Patel . CSPIT . Patel . Word count: .: 3 CSPIT: 1 Jay: 1 Patel: 2

Output 8.3	Enter IDs(0 to stop): 1 5 66 54 7 0 1 5 7 54 66 PS D:\C++\oop\OOPS\8.()>

Output 8.4	Enter name and score (for eg. Jay 55) and enter -1 to stop: Jay 50 You 99 Him 23 -1 -1 1. You 99 2. Jay 50 3. Him 23

Output 8.5	 1. Create Folder 2. Add File to Folder 3. Display 4. Exit Enter your choice: 1 Enter folder name: Hello Folder created. 1. Create Folder 2. Add File to Folder 3. Display 4. Exit Enter your choice: 2 Enter folder name: Hello Enter file name: You File added to folder. 1. Create Folder 2. Add File to Folder 3. Display 4. Exit Enter your choice: 3 --- Directory Structure --- Hello You 1. Create Folder 2. Add File to Folder 3. Display 4. Exit Enter your choice: 4

| **Output 9.1** | ```
Enter loan amount: 200000
Enter annual income: 400000
Loan-to-Income Ratio: 0.5
PS D:\C++\oop\OOPS\9.()>
``` |

| **Output 9.2** | ```
1. Deposit
2. Withdraw
3. Show History
4. Exit
Enter choice: 1
Enter amount to deposit: 200
Deposit successful. Current balance: 200
1. Deposit
2. Withdraw
3. Show History
4. Exit
Enter choice: 2
Enter amount to withdraw: 500
Error: Insufficient balance
1. Deposit
2. Withdraw
3. Show History
4. Exit
Enter choice: 2
Enter amount to withdraw: 50
Withdrawal successful. Current balance: 150
1. Deposit
2. Withdraw
3. Show History
4. Exit
Enter choice: 3
Transaction History:
Deposited: 200
Error occurred in: withdraw
Withdrew: 50
1. Deposit
2. Withdraw
3. Show History
4. Exit
Enter choice: 4
PS D:\C++\oop\OOPS\9.()>
``` |