**Jamnor Yogesh Ramesh:**

**Program for calculator**

import java.util.Scanner; public class SimpleCalc

{

public static void main(String[] args)

{

|  |  |
| --- | --- |
| input | Scanner scanner = new Scanner(System.in); // Create a Scanner object for user |
| program | char choice; // Variable to store user's choice for continuing or exiting the |
|  | do { |
|  | System.out.println("Welcome to Simple Calculator!"); |
|  | System.out.print("Enter the first number: "); |
|  | double num1 = scanner.nextDouble(); // Read the first number from the user |
|  | System.out.print("Enter the operator (+, -, \*, /): "); |
|  | char operator = scanner.next().charAt(0); // Read the operator from the user |
|  | System.out.print("Enter the second number: "); |
|  | double num2 = scanner.nextDouble(); // Read the second number from the user |
|  | double result = 0; // Variable to store the result of the calculation |

try {

// Perform the calculation based on the operator switch (operator) { case '+':

result = num1 + num2; break; case '-':

result = num1 - num2; break; case '\*':

result = num1 \* num2; break; case '/':

if (num2 == 0) { throw new ArithmeticException("Division by zero is not allowed"); }

result = num1 / num2; break; default:

throw new IllegalArgumentException("Invalid operator: " + operator);

}

System.out.println("Result: " + result); // Display the result

} catch (ArithmeticException e) {

System.err.println("Error: " + e.getMessage()); // Handle division by zero exception

} catch (IllegalArgumentException e) {

System.err.println("Error: " + e.getMessage()); // Handle invalid operator exception

}

System.out.print("Do you want to perform another calculation? (y/n): "); choice = scanner.next().charAt(0); // Ask the user if they want to continue

} while (choice == 'y' || choice == 'Y'); // Continue the loop if the user enters 'y' or 'Y' System.out.println("Thank you for using Simple Calculator!"); scanner.close(); // Close the Scanner object to release resources

}

}

**Output**

Welcome to Simple Calculator!

Enter the first number: 10

Enter the operator (+, -, \*, /): +

Enter the second number: 20

Result: 30.0

Do you want to perform another calculation? (y/n): y

Welcome to Simple Calculator!

Enter the first number: 20

Enter the operator (+, -, \*, /): -

Enter the second number: 5

Result: 15.0

Do you want to perform another calculation? (y/n): y

Welcome to Simple Calculator!

Enter the first number: 30

Enter the operator (+, -, \*, /): \*

Enter the second number: 5

Result: 150.0

Do you want to perform another calculation? (y/n): y

Welcome to Simple Calculator!

Enter the first number: 15

Enter the operator (+, -, \*, /): /

Enter the second number: 3

Result: 5.0

Do you want to perform another calculation? (y/n): n

Thank you for using Simple Calculator!

**Program for Banking** import java.util.Scanner;

// BankAccount class to represent a simple bank account class BankAccount

{

private double balance; // Instance variable to store the account balance

// Constructor to initialize the bank account with an initial balance public BankAccount(double initialBalance)

{

balance = initialBalance;

}

// Method to deposit funds into the account public void deposit(double amount) {

if (amount > 0)

{ // Check if the deposit amount is valid balance += amount; // Add the deposit amount to the balance

System.out.println("Deposited: " + amount);

}

else

{

System.out.println("Invalid amount for deposit."); // Display error message for invalid amount

}

}

// Method to withdraw funds from the account public void withdraw(double amount) {

try

{

if (amount > balance)

{ // Check if withdrawal amount exceeds the balance throw new IllegalArgumentException("Withdrawal amount exceeds balance.");

}

else

{

balance -= amount; // Subtract the withdrawal amount from the balance

System.out.println("Withdrawn: " + amount);

} }

catch (IllegalArgumentException e)

{ // Catch exception for overdrawing

System.out.println("Error: " + e.getMessage()); // Display error message

}

}

// Method to display the current balance

public void displayBalance()

{

System.out.println("Current Balance: " + balance);

}

}

// Main class for the banking application public class BankApp

{

public static void main(String[] args)

{

Scanner scanner = new Scanner(System.in); // Create a Scanner object for user input

// Prompt the user to enter initial balance System.out.print("Enter initial balance: "); double initialBalance = scanner.nextDouble(); BankAccount account = new BankAccount(initialBalance); // Create a bank account object

// Display options to the user in a loop

while (true)

{

System.out.println("\nChoose an option:");

System.out.println("1. Deposit");

System.out.println("2. Withdraw");

System.out.println("3. Display Balance");

System.out.println("4. Exit"); System.out.print("Enter your choice: "); int choice = scanner.nextInt(); // Read user's choice

switch (choice)

{

case 1:

// Prompt the user to enter deposit amount and perform deposit System.out.print("Enter deposit amount: "); double depositAmount = scanner.nextDouble(); account.deposit(depositAmount);

break; case 2:

// Prompt the user to enter withdrawal amount and perform withdrawal System.out.print("Enter withdrawal amount: "); double withdrawAmount = scanner.nextDouble(); account.withdraw(withdrawAmount);

break; case 3:

account.displayBalance(); // Display current balance

break; case 4:

System.out.println("Exiting..."); // Exit the program scanner.close(); // Close the Scanner object

System.exit(0);

default:

System.out.println("Invalid choice. Please try again."); // Display error message

for invalid choice

}

}

}

}

**OutPut**

Enter initial balance: 1000

Choose an option:

1. Deposit
2. Withdraw
3. Display Balance 4. Exit

Enter your choice: 1

Enter deposit amount: 500

Deposited: 500.0

Choose an option:

1. Deposit
2. Withdraw
3. Display Balance 4. Exit

Enter your choice: 2

Enter withdrawal amount: 300

Withdrawn: 300.0

Choose an option:

1. Deposit
2. Withdraw
3. Display Balance 4. Exit

Enter your choice: 3

Current Balance: 1200.0

Choose an option:

1. Deposit
2. Withdraw
3. Display Balance
4. Exit

Enter your choice: 4 Exiting...