```
#include <iostream>
#include <string>
using namespace std;

class Expense {
protected:
   string descriptions[100];
   double amounts[100];
   int expenseCount;
   double totalExpenses;

public:

   Expense() : expenseCount(0), totalExpenses(0) {}

   void addExpense(const string& description, double amount) {
      if (expenseCount < 100)
                  {
         descriptions[expenseCount] = description;
         amounts[expenseCount] = amount;
         totalExpenses += amount;
         expenseCount++;
      } else {
         cout << "Cannot add more expenses, limit reached.\n";
      }
   }

   void displayExpenses() const {
      cout << "Expenses List:\n";
      for (int i = 0; i < expenseCount; i++)
                  {
         cout << " - " << descriptions[i] << amounts[i] <<" Rs." << "\n";
      }
      cout << "Total Expenses: " << totalExpenses <<" Rs."<< "\n";
   }

   double getTotalExpenses() const {
      return totalExpenses;
   }
};

class SavingsCalculator : public Expense {
protected:
   string incomeDescriptions[100];
   double incomeAmounts[100];
   int incomeCount;
   double totalIncome;

public:

   SavingsCalculator() : incomeCount(0), totalIncome(0) {}
```

```
    void addIncome(const string& description, double incomeAmount) {
        if (incomeCount < 100)
                        {
            incomeDescriptions[incomeCount] = description;
            incomeAmounts[incomeCount] = incomeAmount;
            totalIncome += incomeAmount;
            incomeCount++;
        } else {
            cout << "Cannot add more income, limit reached.\n";
        }
    }


    void displaySavings() const {
        double savings = totalIncome - getTotalExpenses();
        cout << "Income List:\n";
        for (int i = 0; i < incomeCount; i++)
                        {
            cout << " - " << incomeDescriptions[i] << " : " << incomeAmounts[i] << " Rs.\n";
        }
        cout << "Total Income: " << totalIncome << " Rs.\n";
        cout << "Total Savings: " << savings << " Rs.\n";
    }
};
```

```
  class Investment : public SavingsCalculator
    {
protected:
    double investmentAmount;
    double returnRate;

public:

    Investment() : investmentAmount(0), returnRate(0) {}


    void setInvestment(double amount) {
        investmentAmount = amount;
    }


    void setReturnRate(double rate) {
        returnRate = rate;
    }


    double calculateInvestmentReturn() const {
        return investmentAmount * (returnRate / 100);
    }


    void displayInvestmentDetails() const {
        double investmentReturn = calculateInvestmentReturn();
```

```
        cout << "Investment Amount: " << investmentAmount << " Rs." << "\n";
        cout << "Return Rate: " << returnRate << "%" << "\n";
        cout << "Expected Return: " << investmentReturn << " Rs." << "\n";
    }
};

class BankBalance : public Investment {
public:
    BankBalance() {}

    double calculateBankBalance() const {
        double savings = totalIncome - getTotalExpenses();
        double remainingBalance = savings - investmentAmount;
        return remainingBalance;
    }

    void displayBankBalance() const {
        double balance = calculateBankBalance();
        cout << "Remaining Bank Balance: " << balance << " Rs." << "\n";
    }

    void dispalymsg()
    {
        cout<<"\n _____ _____";
        cout<<"\n   |       ***Thank you for using our application***          | ";
        cout<<"\n |_____ _____|";
        }
};

int main()
{
    BankBalance cal;
    int choice;

        char name[50];

        cout<<"\n_____ _____ _____ _____";

        cout<<"\n _*WELCOME TO*_";
        cout<<"\n               ***EXPENSE TRACKER AND SAVING CALCULATOR***";
        cout<<"\n_____ _____ _____ _____"<<endl<<endl;

        cout<<"Hello!!";
```

```
        cout<<" Enter your name here:";
        cin>>name;
        cin.ignore();
        cout<<name<<" ,let's check your
Expenses and savings.";

   do {

        cout<<"\n\n\n_____
_____EXPENSE TRACKER AND SAVING
CALCULATOR
MENU_____"<<endl<<
endl;
      cout << "\nMenu:\n";
      cout << "1. Set Income\n";
      cout << "2. Add Expense\n";
      cout << "3. Display Expenses\n";
      cout << "4. Display Savings\n";
      cout <<"5.Set Investment \n";
      cout <<"6.Display Investment Details\n";
      cout <<"7.Display Bank Balance\n";
      cout << "8. Exit\n";
      cout <<name<< " Enter your choice: ";
      cin >> choice;

      switch (choice) {

          case 1: {
           double incomeAmount;
           string incdesc;
           cout<<"Enter source of income:";
           cin.ignore();
           getline(cin,incdesc);

           cout << "Enter your income: ";
           cin >> incomeAmount;

cal.addIncome(incdesc,incomeAmount);
           break;
          }

          case 2: {
           string description;
           double amount;
           cout << "Enter expense description:
";

          cin.ignore();
           getline(cin, description);
           cout << "Enter amount: ";
           cin >> amount;
           cal.addExpense(description,
amount);
           break;
          }
          case 3:{

           cal.displayExpenses();
           break;
          }

          case 4:{
```

```
            cal.displaySavings();
            break;
        }

        case 5:{
            double investmentAmount,returnRate;
            cout<<"Enter the amount for investment:";
            cin>>investmentAmount;

            cal.setInvestment(investmentAmount);

            cout<<"Enter return rate in(%):";
            cin>>returnRate;
            cal.setReturnRate(returnRate);
                                    break;
                            }
                            case 6:{

            cal.displayInvestmentDetails();
                                    break;
                            }
                            case 7:{

            cal.displayBankBalance();
                                    break;
                            }

        case 8:{

            cout << "EXIT...\n"<<endl;
            cal.dispalymsg();
            break;
        }
        default:
            cout << "Invalid choice! Please try again.\n";
      }
   } while (choice != 8);

   return 0;

}
```