***Q1. Create a menu that displays at start “Welcome to Assignment 5” and give options to the user to run a program of his/her own choice i.e, if user enters 2 then run question 2, if user enter 3 run question 3, if user enter 4 run question 4 and so on.***

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| #include <iostream>  int main() {  int choice;  // Display welcome message  std::cout << "Welcome to Assignment 5" << std::endl;  // Display menu  std::cout << "Choose a program to run:" << std::endl;  std::cout << "1. Question 1" << std::endl;  std::cout << "2. Question 2" << std::endl;  std::cout << "3. Question 3" << std::endl;  std::cout << "4. Question 4" << std::endl;  // Add more questions as needed  // Get user choice  std::cout << "Enter your choice (1-4): ";  std::cin >> choice;  // Run the selected question  switch (choice) {  case 1:  q1();  break;  case 2:  q2();  break;  case 3:  q3();  break;  case 4:  q4();  break;  // Add cases for more questions  default:  std::cout << "Invalid choice. Exiting program." << std::endl;  break;  }  return 0;  } |

***Q2. Write a function in main.cpp to print ASCII values and their equivalent characters. ASCII values vary from 0 to 255.***

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| #include <iostream>  // Function to print ASCII values and their equivalent characters  void printASCII() {  // Loop through ASCII values from 0 to 255  for (int i = 0; i <= 255; ++i) {  // Print ASCII value and its equivalent character  std::cout << "ASCII Value: " << i << " Character: " << static\_cast<char>(i) << std::endl;  }  }  int main() {  // Call the function to print ASCII values and characters  printASCII();  return 0;  } |

***Q3. Write a function to simulate a simple ATM machine. Write a C++ program that uses a while loop to repeatedly ask the user for their PIN until they enter the correct PIN (e.g., 1234). Provide a message when they successfully enter the correct PIN.***

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| #include <iostream>  // Function to simulate the ATM machine  void simulateATM() {  const int correctPIN = 1234; // Correct PIN for demonstration purposes  int enteredPIN;    // Use a while loop to repeatedly ask for the PIN  while (true) {  std::cout << "Enter your PIN: ";  std::cin >> enteredPIN;  // Check if the entered PIN is correct  if (enteredPIN == correctPIN) {  std::cout << "PIN accepted. Welcome to the ATM!" << std::endl;  break; // Exit the loop when the correct PIN is entered  } else {  std::cout << "Incorrect PIN. Please try again." << std::endl;  }  }  }  int main() {  // Call the function to simulate the ATM machine  simulateATM();  return 0;  } |

***Q4.Write a function to print a square shape through an asterisk using a loop.***

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| #include <iostream>  // Function to print a square shape using asterisks  void printSquare(int size) {  for (int i = 0; i < size; ++i) {  for (int j = 0; j < size; ++j) {  std::cout << "\*";  }  std::cout << std::endl;  }  }  int main() {  // Call the function to print a square shape with size 5  printSquare(5);  return 0;  } |

***Q5. Imagine you are developing a program for a cashier at a grocery store. The cashier needs to enter the prices of items one by one until they are done with the customer's order. You want to use a loop to keep prompting the cashier for the price of each item until they indicate they are finished. Write a function using a loop that accomplishes this task. Also, calculate the total cost of the items entered and display it when the cashier is done entering prices.***

***Provide a code snippet that accomplishes this, and make sure to include a mechanism for the cashier to indicate they are finished entering prices (e.g., entering a negative value).***

***Expected behavior:***

***Enter the price of the item (or a negative value to finish): 2.5***

***Enter the price of the item (or a negative value to finish): 1.99***

***Enter the price of the item (or a negative value to finish): 3.75***

***Enter the price of the item (or a negative value to finish): -1***

***Total cost of items: $8.24***

***Make sure to include error handling if the cashier accidentally enters invalid input, such as a non-numeric value.to check whether a year is a leap year or not.***

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| #include <iostream>  // Function to enter prices and calculate total cost  void enterPrices() {  double price;  double totalCost = 0.0;  // Use a do-while loop to repeatedly prompt for prices  do {  // Prompt the cashier for the price of the item  std::cout << "Enter the price of the item (or a negative value to finish): ";    // Check if the input is a valid double  if (std::cin >> price) {  // Check if the price is non-negative  if (price >= 0) {  totalCost += price;  } else {  // Display the total cost and exit the loop  std::cout << "Total cost of items: $" << totalCost << std::endl;  break;  }  } else {  // Invalid input, clear the input buffer and display an error message  std::cout << "Invalid input. Please enter a valid price." << std::endl;  std::cin.clear();  std::cin.ignore(std::numeric\_limits<std::streamsize>::max(), '\n');  }  } while (true);  }  int main() {  // Call the function to enter prices and calculate total cost  enterPrices();  return 0;  } |