Problem 1 Test Plan

Part a: Y

Part b: Y

Part c: Y

The expected output and the actual output match up.

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| --- | --- | --- |
| Test input | Expected result | Actual result |
| coin penny("Penny", .01);  coin nickel("Nickel", .05);  coin dime("Dime", .10);  coin quarter("Quarter", .25);  //initalize the multiset to be added to purse  multiset<coin> coinList= { penny, nickel, dime, quarter, quarter, nickel, dime, penny, penny, penny };  //initalize the purse  purse Purse1;  Purse1.add(coinList);  //test the totalMoney memberfunction  cout << "The total ammount of change in the purse is: $" << Purse1.totalMoney() << endl;  //test the countPennies method  cout << "The total number of pennies in the purse is: " << Purse1.countPennies() << endl;  //test the countNickles method  cout << "The total number of nickels in the purse is: " << Purse1.countNickels() << endl;  //test the countDimes method  cout << "The total number of dimes in the purse is: " << Purse1.countDimes() << endl;  //test the countQuarters method  cout << "The total number of quarters in the purse is: " << Purse1.countQuarters() << endl;  //Test the payment method  double x = .57;  Purse1.pay(x);  cout << "Payment is $" << x <<" , the new total ammount in the purse is : " << Purse1.totalMoney() << endl;  // test the totalMoney memberfunction  cout << "The total ammount of change in the purse is: $" << Purse1.totalMoney() << endl;  //test the countPennies method  cout << "The total number of pennies in the purse is: " << Purse1.countPennies() << endl;  //test the countNickles method  cout << "The total number of nickels in the purse is: " << Purse1.countNickels() << endl;  //test the countDimes method  cout << "The total number of dimes in the purse is: " << Purse1.countDimes() << endl;  //test the countQuarters method  cout << "The total number of quarters in the purse is: " << Purse1.countQuarters() << endl;  //Part 2:  //initalize the the purses for the array  multiset<coin> coinList2 = { penny, nickel, dime, nickel, dime, penny, penny, penny };  purse Purse2;  Purse2.add(coinList2);  multiset<coin> coinList3 = { penny, nickel, dime, quarter, nickel, dime, penny };  purse Purse3;  Purse3.add(coinList3);  multiset<coin> coinList4 = { penny, dime, quarter, quarter, dime};  purse Purse4;  Purse4.add(coinList4);  multiset<coin> coinList5 = { penny, dime, quarter, quarter, dime, quarter, quarter, nickel, penny };  purse Purse5;  Purse5.add(coinList5);  multiset<coin> coinList6 = { penny, dime, dime, penny, penny, nickel};  purse Purse6;  Purse6.add(coinList6);  //Problem 1 Part B  //create the array the purses will be stored in  purse\* purseArray[] = { &Purse1, &Purse2, &Purse3, &Purse4, &Purse5, &Purse6 };    cout << '\n' << "Problem 1 Part B" << endl;  for (int i = 0; i < 6; i++) {  cout << "The total ammount of change in Purse" << i + 1 << " is : $" << purseArray[i]->totalMoney() << endl;  }  //Qsort the total money in a purse from smallest to largest  int size = sizeof(purseArray) / sizeof(purseArray[0]);  qsort(purseArray, size, sizeof(purse\*), compareTotalMoney);  for (int i = 0; i < 6; i++) {  cout << "The total ammount in Purse" << i + 1 << " is : $" << purseArray[i]->totalMoney() << endl;  }  //Qsort to compar the total number of coins in each purse from smallest to largest  qsort(purseArray, size, sizeof(purse\*), compareTotalCoins);  for (int i = 0; i < 6; i++) {  cout << "The total ammount in Purse" << i + 1 << " is : $" << purseArray[i]->totalMoney() << endl;  }  //Problem 1 part C  cout << '\n' << "Problem 1 Part C" << endl;  //create the colection of purses  vector<purse> purses = { Purse1, Purse2, Purse3, Purse4, Purse5, Purse6 };    //diplay the total ammount each purse had before it is sorted  cout << "Purse collection prior to the sort:" << endl;  for (int i = 0; i < purses.size(); i++) {  cout << "Purse " << (i + 1) << " has total money: $" << purses[i].totalMoney() << endl;  };    //sort the total ammount of  sort(purses.begin(), purses.end());  //diplay the total ammount each purse had before it is sorted  cout << '\n' << "Purse collection after the sort:" << endl;  for (int i = 0; i < purses.size(); i++) {  cout << "Purse " << (i + 1) << " has total money: $" << purses[i].totalMoney() << endl;  }; | The total ammount of change in the purse is: $0.84  The total number of pennies in the purse is: 4  The total number of nickels in the purse is: 2  The total number of dimes in the purse is: 2  The total number of quarters in the purse is: 2  Quarter removed  Quarter removed  Nickle removed  Penny removed  Penny removed  No exact change  Payment is $0.57 , the new total ammount in the purse is : 0.27  The total ammount of change in the purse is: $0.27  The total number of pennies in the purse is: 2  The total number of nickels in the purse is: 1  The total number of dimes in the purse is: 2  The total number of quarters in the purse is: 0  Problem 1 Part B  The total ammount of change in Purse1 is : $0.27  The total ammount of change in Purse2 is : $0.34  The total ammount of change in Purse3 is : $0.57  The total ammount of change in Purse4 is : $0.71  The total ammount of change in Purse5 is : $1.27  The total ammount of change in Purse6 is : $0.28  The total ammount in Purse1 is : $0.27  The total ammount in Purse2 is : $0.28  The total ammount in Purse3 is : $0.34  The total ammount in Purse4 is : $0.57  The total ammount in Purse5 is : $0.71  The total ammount in Purse6 is : $1.27  The total ammount in Purse1 is : $0.71  The total ammount in Purse2 is : $0.27  The total ammount in Purse3 is : $0.28  The total ammount in Purse4 is : $0.57  The total ammount in Purse5 is : $0.34  The total ammount in Purse6 is : $1.27  Problem 1 Part C  Purse collection prior to the sort:  Purse 1 has total money: $0.27  Purse 2 has total money: $0.34  Purse 3 has total money: $0.57  Purse 4 has total money: $0.71  Purse 5 has total money: $1.27  Purse 6 has total money: $0.28  Purse collection after the sort:  Purse 1 has total money: $0.27  Purse 2 has total money: $0.28  Purse 3 has total money: $0.34  Purse 4 has total money: $0.57  Purse 5 has total money: $0.71  Purse 6 has total money: $1.27 | The total ammount of change in the purse is: $0.84  The total number of pennies in the purse is: 4  The total number of nickels in the purse is: 2  The total number of dimes in the purse is: 2  The total number of quarters in the purse is: 2  Quarter removed  Quarter removed  Nickle removed  Penny removed  Penny removed  No exact change  Payment is $0.57 , the new total ammount in the purse is : 0.27  The total ammount of change in the purse is: $0.27  The total number of pennies in the purse is: 2  The total number of nickels in the purse is: 1  The total number of dimes in the purse is: 2  The total number of quarters in the purse is: 0  Problem 1 Part B  The total ammount of change in Purse1 is : $0.27  The total ammount of change in Purse2 is : $0.34  The total ammount of change in Purse3 is : $0.57  The total ammount of change in Purse4 is : $0.71  The total ammount of change in Purse5 is : $1.27  The total ammount of change in Purse6 is : $0.28  The total ammount in Purse1 is : $0.27  The total ammount in Purse2 is : $0.28  The total ammount in Purse3 is : $0.34  The total ammount in Purse4 is : $0.57  The total ammount in Purse5 is : $0.71  The total ammount in Purse6 is : $1.27  The total ammount in Purse1 is : $0.71  The total ammount in Purse2 is : $0.27  The total ammount in Purse3 is : $0.28  The total ammount in Purse4 is : $0.57  The total ammount in Purse5 is : $0.34  The total ammount in Purse6 is : $1.27  Problem 1 Part C  Purse collection prior to the sort:  Purse 1 has total money: $0.27  Purse 2 has total money: $0.34  Purse 3 has total money: $0.57  Purse 4 has total money: $0.71  Purse 5 has total money: $1.27  Purse 6 has total money: $0.28  Purse collection after the sort:  Purse 1 has total money: $0.27  Purse 2 has total money: $0.28  Purse 3 has total money: $0.34  Purse 4 has total money: $0.57  Purse 5 has total money: $0.71  Purse 6 has total money: $1.27 |