Programming Fundamentals (CSC-115) Instructor: Hamna Anwar

Assignment 2 solution Max Marks: 15

Due Date: 9th May 2024

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Q1: #include <iostream>  
using namespace std;  
  
int main() {  
 int workingHours[4];  
 int payRate[4];  
 float totalSalary[4];  
  
 for(int i = 0; i < 4; i++) {  
 cout << "Enter the number of hours for Employee " << i+1 << ": ";  
 cin >> workingHours[i];  
 }  
  
 for(int i = 0; i < 4; i++) {  
 cout << "Enter the pay rate for Employee " << i+1 << ": ";  
 cin >> payRate[i];  
 }  
  
 for(int i = 0; i < 4; i++) {  
 totalSalary[i] = workingHours[i] \* payRate[i];  
 cout << "Employee " << i+1 << ":\nHours: " << workingHours[i] << "\nPay Rate: " << payRate[i] << "\nSalary: " << totalSalary[i] << "\n\n";  
 }  
  
 return 0;  
}

Q2: #include <iostream>  
using namespace std;  
  
const int MONKEY\_COUNT = 3;  
const int DAYS\_IN\_WEEK = 5;  
  
int main() {  
 double foodConsumed[MONKEY\_COUNT][DAYS\_IN\_WEEK];  
  
 for (int i = 0; i < MONKEY\_COUNT; ++i) {  
 cout << "Please input the daily food consumption (in pounds) for Monkey " << i + 1 << " throughout the week:" << endl;  
 for (int j = 0; j < DAYS\_IN\_WEEK; ++j) {  
 do {  
 cout << "Day " << j + 1 << ": ";  
 cin >> foodConsumed[i][j];  
 if (foodConsumed[i][j] < 0) {  
 cout << "Please enter a positive value." << endl;  
 }  
 } while (foodConsumed[i][j] < 0);  
 }  
 }  
  
 double totalFood = 0, minFood = foodConsumed[0][0], maxFood = foodConsumed[0][0];  
 for (int i = 0; i < MONKEY\_COUNT; ++i) {  
 for (int j = 0; j < DAYS\_IN\_WEEK; ++j) {  
 totalFood += foodConsumed[i][j];  
 minFood = (foodConsumed[i][j] < minFood) ? foodConsumed[i][j] : minFood;  
 maxFood = (foodConsumed[i][j] > maxFood) ? foodConsumed[i][j] : maxFood;  
 }  
 }  
  
 double averageFood = totalFood / (MONKEY\_COUNT \* DAYS\_IN\_WEEK);  
  
 cout << "\nWeekly Food Consumption Report:" << endl;  
 cout << "Average food consumption per day for all monkeys: " << averageFood << " pounds" << endl;  
 cout << "Minimum food consumption by any monkey during the week: " << minFood << " pounds" << endl;  
 cout << "Maximum food consumption by any monkey during the week: " << maxFood << " pounds" << endl;  
  
 return 0;  
}

Q3: #include <iostream>  
using namespace std;  
  
const int MONTH\_COUNT = 3;  
const int DAYS\_PER\_MONTH = 30;  
  
int main() {  
 char weatherRecords[MONTH\_COUNT][DAYS\_PER\_MONTH];  
  
 cout << "Please input weather data for each day of the three-month summer season:" << endl;  
 for (int i = 0; i < MONTH\_COUNT; ++i) {  
 cout << "Month " << i + 1 << ":" << endl;  
 for (int j = 0; j < DAYS\_PER\_MONTH; ++j) {  
 cin >> weatherRecords[i][j];  
 }  
 }  
  
 int rainyDays[MONTH\_COUNT] = {0};  
 int cloudyDays[MONTH\_COUNT] = {0};  
 int sunnyDays[MONTH\_COUNT] = {0};  
  
 for (int i = 0; i < MONTH\_COUNT; ++i) {  
 for (int j = 0; j < DAYS\_PER\_MONTH; ++j) {  
 switch (weatherRecords[i][j]) {  
 case 'R':  
 rainyDays[i]++;  
 break;  
 case 'C':  
 cloudyDays[i]++;  
 break;  
 case 'S':  
 sunnyDays[i]++;  
 break;  
 default:  
 cout << "Invalid weather data." << endl;  
 return 1;  
 }  
 }  
 }  
 cout << "\nWeather Report:" << endl;  
 for (int i = 0; i < MONTH\_COUNT; ++i) {  
 cout << "Month " << i + 1 << ":" << endl;  
 cout << "Rainy days: " << rainyDays[i] << endl;  
 cout << "Cloudy days: " << cloudyDays[i] << endl;  
 cout << "Sunny days: " << sunnyDays[i] << endl;  
 cout << endl;  
 }  
 int maxRainyMonthIndex = 0;  
 for (int i = 1; i < MONTH\_COUNT; ++i) {  
 if (rainyDays[i] > rainyDays[maxRainyMonthIndex]) {  
 maxRainyMonthIndex = i;  
 }  
 }  
 cout << "The month with the highest number of rainy days is Month " << maxRainyMonthIndex + 1 << "." << endl;  
  
 return 0;  
}

Q4: #include <iostream>  
using namespace std;  
  
int main() {  
  
 const int NUM\_DIGITS = 5;  
  
 int lottery[NUM\_DIGITS];  
 int user[NUM\_DIGITS];  
 int matchingDigits = 0;  
  
 // Prompt for lottery numbers  
 cout << "Enter the lottery numbers (5 digits separated by spaces): ";  
  
 // Input lottery numbers  
 for (int i = 0; i < NUM\_DIGITS; ++i) {  
 cin >> lottery[i];  
 }  
  
 // Prompt for user numbers  
 cout << "Enter your numbers (5 digits separated by spaces): ";  
  
 // Input user numbers  
 for (int i = 0; i < NUM\_DIGITS; ++i) {  
 cin >> user[i];  
 }  
  
 // Count matching digits  
 for (int i = 0; i < NUM\_DIGITS; ++i) {  
 if (user[i] == lottery[i]) {  
 matchingDigits++;  
 }  
 }  
  
 // Output the number of matching digits  
 cout << "Matching digits: " << matchingDigits << endl;  
  
 // Check if all digits match  
 if (matchingDigits == NUM\_DIGITS) {  
 cout << "Congratulations! You won!" << endl;  
 } else {  
 cout << "Better luck next time!" << endl;  
 }  
  
 return 0;  
}