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CS 162

Program 4-5 Algorithms

**Program 4**

// Purpose is to build a class “Activity” that will store a single activity that can be done in

// Oregon. Make all of the arrays dynamically allocated and keeps track of type of activity, // location of activity, season the activity can be done in, description of the experience and // date last did the activity.

// Also create a class that will keep track of all of the Activities. Use a dynamically allocated // as the data member. Keep track of the number of Activities being stored in Adventure.

1. Create a class that will store in a single Activity.
   1. Take user input on: type of activity, location of the activity, the season when the activity is best to do, description of the last experience doing it, and the date of the last time you did the activity
   2. Make sure that arrays are dynamically allocated arrays so that the user may type in as much information as they would desire
2. Create another class that will store a list of Activities called Adventure
   1. Make this a dynamically allocated array so that there is no limit on the number of Activities there are stored
   2. Keep a count of the number of Activities that are being stored in the Adventure class’ array
3. Read in the information currently stored in Adventures class so that it may be either appended or displayed to the user
4. Ask the user whether they would like to view the adventures available based on the season, or if they would like to add an activity to the adventure list, or quit
5. Create a function that will get the user input of the necessary information about the activity they want to have stored
   1. Create temporary static arrays for each of the pieces of information being read in and then strcpy them into the dynamically allocated arrays
   2. Prompt the user for what season the activity is for
      1. This will be used in the display\_season function so that if the user is looking for an activity to do in a particular season they can view solely the activities that are in that desired season
   3. Prompt the user for all of the information on the activity that they are entering in and read it into the elements of the Activity class
      1. Once all of the information is inputted, store it into the Adventure’s class
6. Create a loop for steps 4-5 and if the user’s input on step 4 is quit, then make the final changes to Adventure if need be.

**Program 5**

// Continuation of Program 4…

// Instead of using dynamically allocated arrays, use a linear linked list to store away the information on the Activities in Adventure.

1. Modify Adventures in program 4 so that rather than having a dynamically allocated array, there is a linear linked list.
   1. This will be beneficial because we can grow or shrink the size of the list
   2. This will also be beneficial because we can store it according to season in the list so that it is in a sorted order
2. Create a struct that will hold the data for the activities
   1. Create pointers that will allow to traverse through the linked list so that the Activities in Adventure can be displayed to the user based on the season
      1. Make pointers for each season so that when displaying the items, only the season that is desired is being displayed
3. Add a destructor the Adventures class as well as the Activities class
   1. This will de-allocate the memory that was being allotted so that there isn’t memory being wasted