

Plan a Trip (Teacher Version)

Corresponding Material

AP CSP Introduction to Programming, Top Down Design and Decomposition

Discussion

The very first thing you should do every time you write a program is *plan your program!!* You will be much more successful and much less stressed if you take some time to outline the goals of your program, and the steps needed to accomplish these goals.

Suppose you wanted to go on vacation. Can you just decide one day that you want to go to Luxembourg? Can you assume that you'll figure out what you are going to do and where are you going to stay when you get there? Maybe, but in reality, probably not. Your vacation will go much more smoothly if you plan it out in advance. Plus, you'll end up saving some money!

Further Discussion

The goal of this exercise is to let students take a very large problem and break it into smaller, more manageable steps.

You can either have students research places to visit, or just use prior knowledge. It isn't important that their trip is *actually* feasible, as long as it kind of makes logical sense. For example, going from the East side of the country to the West side and then back to the East side isn't logical, but it's ok if the route isn't the most efficient.

Class Exercise

Get into groups of two to four people. You will plan a cross country trip!

You should plan where you want to go, what you want to see while you're there, and in what order you will visit each location. You should come up with an itinerary that lists how many days you'll stay in each place and what you will see or do on each day.



Discussion Questions

1. What was the large problem you had to solve by planning a trip?
 - a. Had to decide where to go on vacation and how many days to spend in each place
2. What smaller problems did you solve to find a solution to the large problem?
 - a. The small problems were
 - i. picking places to go
 - ii. picking places to see
 - iii. choosing a route between the places to go
 - iv. deciding how many days to spend in each place
3. How is planning a trip like planning a program?
 - a. Have to set a goal -- what are you trying to accomplish?
 - b. Have to decide what the best way to solve the problem is
 - c. Have to break up big problems into smaller and smaller problems
 - d. Have to solve the problem piece by piece; you can't solve the whole thing at once