Homework # 1. Blind Search Mechanisms:
Work as a group and answer each of the following questions. You must report only one

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1.- For each of the following problems, determine as a group, which search method: BREADTH FIRST or DEPTH FIRST would you use? In each case justify the answer and report the conclusions.

A program for playing chess
We would use DEPTH FIRST, because each node of its graph of problem solving have many children, due to the many movements possibles that exist in a board configuration, so that the BREADTH FIRST is an inconceivable solution, and in this case the shortest path couldn't be important.

A program for medical diagnosis
We would use Depth First, because we suppose that there are many diseases that come from the same symptom, so that each node has many children. And it is more likely that the solution be in a lower level than in the first levels.

A program to determine the best sequence of steps in a manufacturing procedure, to convert the raw material into a final product.
We would Breadth First, because the program need analyze the shortest path to convert the raw material into a final product .

A program to determine if 2 mathematical expressions are equivalent.

We would use Depth First, because exist a lot ways to demonstrate equivalence. For this reason the number of the nodes in each level is very big.

2.- As a group, determine whether GOAL-DRIVEN or DATA-DRIVEN search would be preferable for solving each of the following problems. Then, report the conclusions of your discussion.

A program for examining radar readings and interpreting them to locate an airplane approaching an airport. Data Driven
We would use data-driven because there are many locations where the airplane could be. It's more difficult search a solution by goal-driven. In addition we have the data from the radar.

Security advisor to diagnose a problem at the entrance of a building. Goal Driven

We would use Goal Driven because is better that the security advisor from the facts determine if it is a problem at the entrance of the building, then the security advisor from its datas try to find the fact.

A theorem prover in mathematical logic.

Goal Driven, because if the solution were data-driven we have to begin from the rules or definitions and keep trying every deduction to reach the theorem and exits many theorems. It's better user goal-driven because we descart many branches that we don't need.

You have met a person who claims to be your distant cousin; with a common ancestor named Juan <put here your last name>. You would like to verify her claim.

Goal Driven. Because in this case we have enough information to choose a hypothesis, that two persons have ancestor with the same names isn't very commun.

Another person claims to be your distant cousin. He does not know the common ancestor's name but knows that it was no more than ten generations back. You would like to either find this ancestor or determine that she did not exist.

Data Driven, because we don't have enough information to get a hypothesis.

An intelligent system to help an operator classify the clients according to the income level, expenditure capacity, etc.

Data Driven, because the system can analyze the income level of the clients then could classify them.

3.- The decision for doing DATA or GOAL DRIVEN search is generally based on the structure of the problem. As a group, discuss and report the conclusions about the characteristics of the structure that the problems should have. Report at least 3 characteristics for data driven and 3 for goal driven search.

Data driven:

- When the datas are given in the most.
- When there are many potentials goals, and there are a few ways to use the data given. (few children from the data)
- It is difficult to determine a goal or hypothesis.

Goal Driven
-When we get the hypothesis or goal at the problem.
-When we have many rules or facts that can get some goal or hypothesis.
-When the problem data are not given at beginning the problem.