KCA UNIVERSITY

BSC IT

STAGE 3 SEM 2

BIT 4405: EXPERT SYSTEMS

TAP

Question One

Internet games have become very popular. Designing a good computer game needs to use 3D graphics and artificial intelligence technologies. Search the literature to specify what AI techniques are able to make computer entertainment more exciting and challenging

Question Two

Find applications of artificial intelligence and expert systems. Identify an organization with which at least one member of your group has a good contact who has a decision-making problem that requires some expertise (but is not too complicated). Understand the nature of its business and identify problems that have been supported or can potentially be supported by intelligent systems. Some examples include selection of suppliers, selection of new employee, job assignments computer selection, market-contact method selection, and determining admission to graduate school.

Question Three

Consider the decision-making situation defined by the following rules:

1. If it is a nice day and it is summer, then I go to the golf course.
2. If it is a nice day and it is winter, then I go to the ski resort.
3. If it is not a nice day and it is summer, then I go to work.
4. If it is not a nice day and it is winter, then I go to class.
5. If I go to the golf course, then I play golf.
6. If I go to the ski resort, then I go skiing.
7. If I go skiing or I play golf, then I have fun.
8. If I go to work, then I make money.
9. If I go to class, then I learn something.

a. Follow the rules for the following situations (what do you conclude for each one?):

1. It is a nice day and it is summer.
2. It is not a nice day and it is winter.
3. It is a nice day and it is winter.
4. It is not a nice day and it is summer.

b. Are there any other combinations that are valid? Explain.

c. What needs to happen for you to “learn something” in this knowledge universe? Start with the conclusion “learn something” and identify the rules used (backward) to get to the needed facts.

d. Encode the knowledge into a graphical diagram (like an influence diagram). Use a circle to represent a fact such as:
The day is nice
or
The day is not nice
and an arrow to indicate influence.
e. Write a L.C. (or other third-generation language) program to execute this knowledge. Use IF- THEN (ELSE) statements in your implementation. How many lines long is it? How hard would it be to modify the program to insert new facts and a rule such as:

1. If it is cloudy and it is warm
2. and it is not raining
3. and it is summer
4. then I go play golf.

f. Implement the knowledge in a spreadsheet or database package on a PC.
g. Advanced exercise. In an implementation similar to the one in part (d), write a new implementation but store the knowledge in variables. Let the program search the arrays to make decisions.