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Assignment No:- 1B

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Sem/Branch :- VII / IT

Subject :- AI

Dop.	D.O.A	Marks	Sign

Q 1) Explain PEAS description for wumpus coorld

= i) performance measure:-
- +100 for grabbing gold & coming back to start.
- -200 if player is killed
- -1 per action
- -10 for using a arrow

ii) Environment
- Empty rooms
- Room with wumpus
- Rooms Neighbouring to wampup which are shells
- Rooms with bottomless pits
- Room neighbouring with bottomless pits which are breezy
- Room with gold which is glitery
- Arrow to shoot wumpos.

iii) Sensor (assuming Robotic agent)
- Camera to get the view
- Odor sensor to sheel
- Audio sensor to listen to scream bump

iv) Elector (assuming robotic agents)
- motor to move left right.
- Robot on to grab.
- Robot mechanism to shot arrow.

Wumpus world agent has following character :-

a) fully observable
b) Deterministics
c) Static
d) Discrete
e) Single agent

Q 2) Explain Various elements of Cognitive system

→

1) Cognitive Computing is New type of Computing with goal of more accurate models of how human brain Imind sensor, reason & responds to stimulus

2) Generaly, term Cognitive Computing is used to refer to new hardware & low slw that following functioning of human brain thereby improving human decision making Cognitive Computing applications links data Analysis of Adaptive page - Followings are elements of Cognitive System.

a) Interactive :-
- They may interact easily with users so, those users can define their needs Comfortably.

b) Adaptive :-
- They may be engineered to Feed on dynamic data in real time. They may learn as information changes & as goals & requirement envolve

c) Contextual :-
- They may understand, identify or extract Contextual elements such as meaning Syntax, location, appropriate domain etc.

Q 3) Write a Note on language model.

⇒ 1) Goal of language model is to compute probability of token (e.g. sentence or sequence of words) are useful is many different NPL applications.

2) language model actually a grammar of language as it gives probability of word that will follow.

3) In case of (L.M) probability of a sentence as sequence of word is

$$p(w) = p(w_1, w_2, w_3 \ldots w_n)$$

4) It can also be used to find probability of next word in sentence.

$$(p(w_5 | w_1, w_2, w_3, w_4)$$

5) A model that computes either of these is language model.

6) There are various language model available a few are:-

a) methods using markov assumption:-

- A process which is stocastic in nature is said to have markov property if conditional probability of future state depends upon present states

b) N-Grams models:-

-from markov assumption we can formaly define models where k: A-1 as following

$$p(w_1 | w_2 \ldots w_{i-1})$$

c) original model (k-1):-

$$P(w_1 w_2 \ldots w_n) \; \Pi P(w_i)$$

d) Bigrams Model (k = 2) :-

$$P(w_i / w_1, w_2 \ldots w_n) = P(w_i / w_{i-1})$$

$$(w_i / w_{i-1}) = \frac{\text{Count}(w_{i-1} \ldots w)}{\text{Count}(w_{i-1} - w)}$$

Q 4) Write a note on machine Translation !

→ Machine Trasletion is classic test of language understand. It Consist of both language analysis & generation. many machine translation systems have huge Commercial use following are few eg.

- Google Translate goes through 100 billion words per day
- eBay uses machine translation techniques to enable Cross-border trade & Connect buyers/ Sellers ground globe.
- Facebook User machine Translation to translate text into points & Comment automatically in order to break language barrier
- Systran become 1st software provider to launch a machine translation engine in more than 30 languages in 2016.
- microsoft brings AI-powered translation to end user & developers on Android, IOS end Amazon whether or not they have access to internet.
- In traditional Machine transition sysem. Parallel Coollection of trees is used to each of width is translate into one or more other language than original.

e.g given source language e.g. French & language eg. English.

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Q 5) Explain Following terms :-

a) Phonology :-
- It is study of organizing sounds systematically in an NLP (Natural language processing) system.

b) Morphology :-
- It is study of construction of words from primitive meaningful units.

c] Lexical Analysis :-
- Lexical is words & phase in Language Lexical Analysis deals with recognition & identification of structure of sentences. It provides programs in sentence phase.

d] Word Sense disambiguation :-
- While using words that have more than one meaning we have to select meaning which makes most sense in context.
For e.g.: We are typically given list of words sense e.g. From dictionary or focus on Online Resource such as wordnet.

e] Systatic Analysis :-
- In this sentense are parsed as Noun, Verbs objective & other parts of sentences. In this phase grammer of sentence is analyze in order to get relationship among different words.