Assignment No :- 1B

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Subject :- AI

DOP   DOA   MARKS   SIGN.

Q1] Explain PEAS description for WUMPUS world.

=> **i) perform measure:-**

⮡ -+ 100 for Grabbing Goal. & comming back to start

⮡ -200 if player is killed

⮡ -1 per action.

⮡ -10 for using arrow

ii) Environment

→ Empty rooms.

→ Room with WUMPUS.

↪ Room neighbouring to WOMPUS which are smells.

⇒ Room with bottomless pits.

⇒ Room neighbouring with Bottomless pits which are breezy

→ Room with gold which is glitery

→ Arrow to shoot WUMPUS.

iii) sensor (assuming Robotic agent).

— camera to get the view

— Odoe-sensor to smell

— Audio sensor to listen to scream Bump

iv) Eroctor (assuming robotic agent)

— motor to move. left right

— Robot arm to Grab

— Robot mechanism to shoot arrow

WUMPUS world agent has following character:-

a) fully observable.

b) Deterministics

c) static

d) Discrete.

e) single agent

Q2. Explain Various element of conguitive system.

=> 1) Cognitive computing is new type of compeiting with goal of more accurate models of how human brain / mind senses, reason & respons to stimulus.

2) Generally term coguitive computing is used to refer to new h/w &/or s/w that mimic following functioning of human brain thereby improving human decision making coguitive computing applications. links data analysis of Adamptive page i.e. Adaptive user interfau. to adjust content for particulai type of Audiene following are elements of coguitive system.

a] Interactive:-

— They may intract easily with user so those user can define their neuds confortably They may also interact with other prain deiicus of doud semeica as well as with people.

b) Adaptive:-

— They may be Engineuved to feed on dynamic data is real time. They may learn as information changers, & as goals & requirements Evalve.

c). Contexual:-

They may understand identify or Eotract contexual element such as nearing syntax. location appropriat domain etc

d] Interaction of state.

- They may used in defining a problem by asking question or finding additional source. input if problem statement is incomplete.

Q3) Write a note on language model.

⇒ 1] Goal of language model is to compute probability of token. (eg. sentence or sequence of words are usefull in many different NLP application.

2] Languages model actually a grammer of a language. as it gives probability of word that will follow

3] In case of $P(Lw)$ probability of a sentence. as sequence of words 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 computer either of these is. language model.

(There are various language model available. a few are:-

a) Method using Markov assumption.
  - A process which is. stochastic in nature. is said to have markov property if. conditional probility of future state. depends upon present state.

b) N-Gram models:-
  - From Markov assumption. we can. formally define models. where $k = n-1$ as following
$$P(w_1/w_1, w_2, \ldots w_{i-1})$$

c) Unigram model (k-1):-
$$p(w, w_2 \ldots w_n) = \prod p(w_i)$$

d) Bigram model (k>2):-
$$p(w_4/w_1, w_2, \ldots w_{i-1}) = P(w_i/w_{i-1}).$$
$$(w_i/w_{i-1}) = \frac{Count(w_{i-1} \ldots w)}{count(w_i - w)}$$

Q4] write a note on mechine Translation?

=> 1] machine Translation is clarite test of language understand. If consist of Both language analysis & generation many machine translation System have huge commercial use. following are few of. Eg:-

- Google Translate goes through 100 Billion words per day

- EBay uses machine translation technique to Enable cross-border trade & connect buyers/Sellers ground Globle

- Facebook uses machine Translation to warring translate text into post & comments automatically in Order to break language barrier.

- System become 1st s/w provider to launch a machine Translation Engine in more than 800 language in 2016.

- microsoft brings AI-Powered translation to End user & developers on Android. IOS & Amazon whether or Not they have access to internal.

- In traditional machine Translation system parallel cepus a collection of trees is used to Each other of width is translated into One or more other languages than original eg:- Given source language eg French & language eg English.

Q5) 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 & phrase in language. Lexical Analysis deals with recognition & identification of structure of sentences. It divides, programs in sentence, phrase & words.

d) Syntatic Analysis

- In this sentence are passed as noun verbs adjective & other parts of sentences. In this phase Grammer of sentence is analyze in order to get relationship among different words in sentence. eg :- Mango eats me will be register by analyze.

e) word sense disambiguation

- while using words that have more than one meaning we have to select meaning which makes most sense in context. For Eg :- we are typically given list of words sense Eg from dictionary or from an online Resource such as words net.