ASSIGNMENT 1 Part B

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ROLL NO-54

Branch - IT (BE)

Sub- AI

Sem- VII

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Q.1:	Explain PEAS description for WUMPUS world
	medelize
المستبسلسة	and coming
1	the Starting Position
	200 It the player Tugent) is killed
tret	The input might be noith and
<u>ions</u>	- 10 for using the amow.
o Joc	te de prit may be a response to an
1	2. Environment .true acros 40
10 O	- 2Empty roomsz p paidt tarif ed
طِياً	- Roons with WUMPUS boundary bour
1/2 1	- Rooms neighbouring to wumpus which
UJ (Y	context info will enabylems orpite
200	- Rooms with Bottomless pits
ato	- Rooms neighbouring to bottomless nits
7103	which greezystapa eviding
	Rooms with gold which is glittery.
3101	Arrow to shoot the WUMPUS.
	the input.
	3. Sensor (assuming a robotic agent)
1	- motor to move left, righted A.
	- Robot arm to grab the gold:
	- Robot mechanism to shoot the amow.
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	help himidus make choices and solv
	The WUMPUS world agent has following
200	probaracteristics - 290b medzyz ant this
<u> </u>	1. Fully observable 2129050 Discrete
002	2. Deterministic
4 1217	STEPISOCIEDO 2123 POL 5 GM DES TO
1010	# Distation of informations

0.2. Explain various element of cognitive system.

1. A way of interpreting input- A cognitive system needs to answer a question for provide a result based on an input.

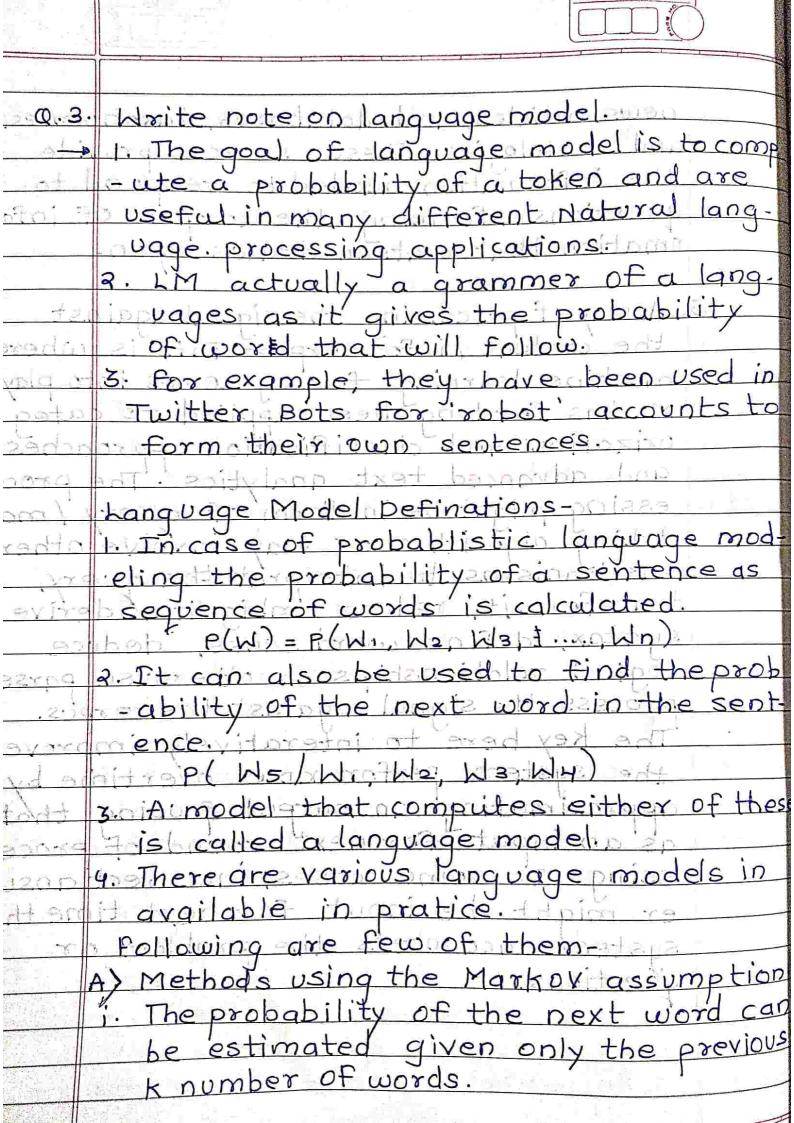
The input might based on an input. the input might be a search term, text phrase, a query asked in natural langua. ge, or it may be a response to an action of some continuation of some sort. The first thing a system needs to do is understand the context of signal examples - location, speed of motion such context info will enable the system to narrow down the potential responses to those that are more appropriate.

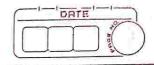
Cognitive system needs to start some where they need to know or expect something about the user to sinterpret the input. x, sensor (assuming a robotic agent 2. A body of content /information that poppiedems . sospo blow 249Mul adi But the system does not make up the answer experience synthesis of new knowledge is based on foundation knowledge TBM watson for example ingests many structured repositories of information idictionaries



news articles, and databases, taxonomies. and ontologies. These sources provide
the information needed to respond to
questions, forming the corpus of information that watson draws upon. A way of processing the signal against
the content / info corpus- This is where
machine learning for eg comes into play.
ML has for long been applied to categ
orization and classification approaches
and advanced text analytics. The processing might be in form of query / ma-tching algorithm or may involve other mechanisms to interpret the query, transformit, reduce ambiguity derive syntax, define word sense, deduce process the signal against the corpus.

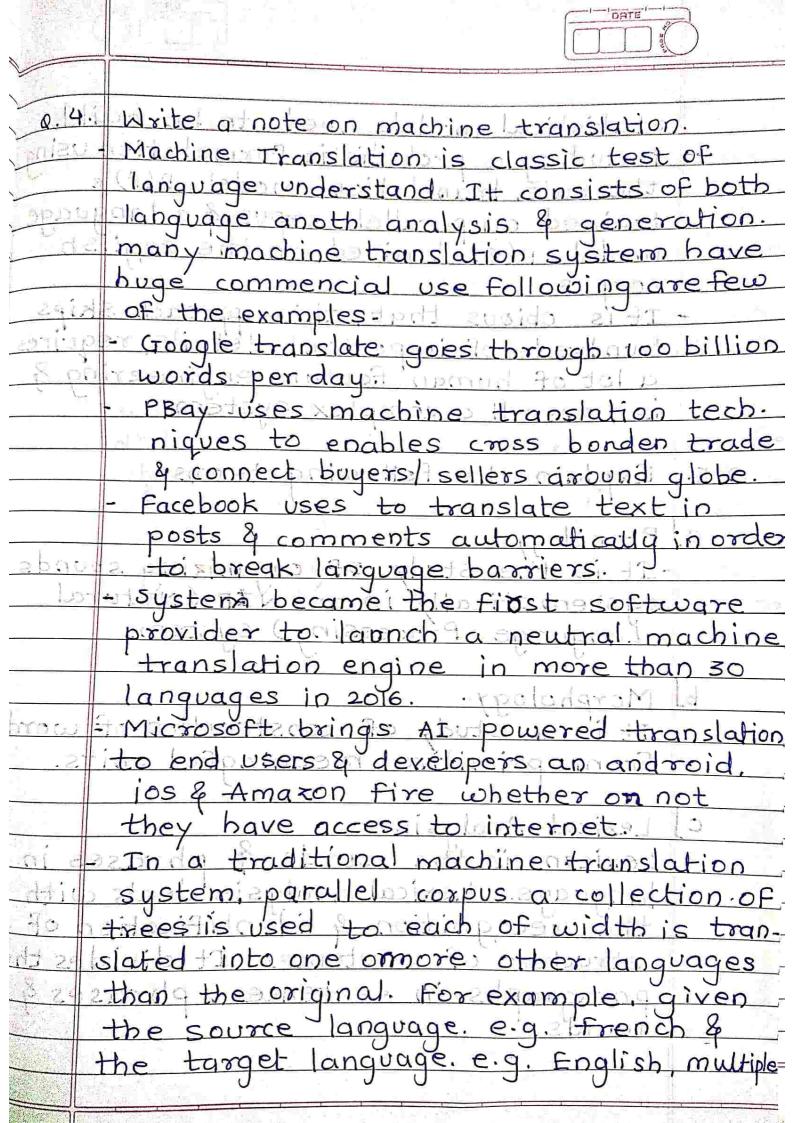
The key here to interatively improve the system performance over time by approximating an output grusing that as an input for next round of processing. In some cases, incorrect answer might be input for next time the system encounters the problem or





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War Instit	Don 2-1 10
	For example; if k=1;
4 . 2	Putransparent lits water is so) & P
-101101	Ctransparent/so)
(5(3)(3))	PHOYELEK = 20 mail and An Arus
1,000	P(transparent/its materis so) ~
25(1)(5)	P(transparent / is so)
and	the Markov Assumption k=1:
70-2	P(Wi/ Wi-W2 Wi-1) = P(Wi/Wi-K Wi-1)
35qU5	i) Language model Language 1984elis
3 bd (	BIN- gram Models-1- Times of the
Ao J	from the markov Assumption, we can
	formally define N-gram models where
culse	K=n-prasifoliows-innol revoered .
43	P(Wi/W, W21.01.Wi-1) = P(Wi/Wi-(n-1)
rob	tokens. As every language Ci-iWas
of n	The simplest version of this are def-
25	Tinedias unigram model (k=1) and the
	Bigram model (K=2)
	c) Unigram Model (K=1): P(W1W2Wn) = TP(W1)
	P(WIW2Wn) = TP(WI)
L. TARE	D) Bigram Model (K=2): P(Wi/W1W2 Wi-1) ≈ P(Wi/Wi-1)
	P(Wi/WIW2 Wi-1) ≈ P(Wi/Wi-1)
	following is maximum Likelihood Esti-
	mate model to estimating Bigram
	Probabilities
	(Wi/Wi-1) = Count (Wi-1 Wi)
	(ount(Wi-1)

5. Language Modeling is one of most important parts of modern Natural language processing. There are many sort of application for language mode ling, like: spell correction, speech Recog. nition, machine Translation, Question Answering, summarization, sentiment anal sis etc All these tasks require use of language model. Language model is supposed to represent the text to a form understandable from the machine point of candle viewin morn-k anitah ullaman 6 Moreover, language modelling must also consider the correlated ordering of tokens. As every language is based on some grammer where order has a lot of influence on the meaning of a text (E=2) 1 & born commission ch Unigram Model (K=1):



<u> </u>	statistical models needs to be build
	including a probalistic formation Using
tod 1	the rule translation model to e
us Ida	trained on parallel corpus qual anguage
icb cl	model p(e) trained on the english
	hige commencial use follozudrosu
	It is obious that, this approach skips
illid	hundreds of important details, requires
	a lot of human feature engineering &
45 B.T.	is overall a complex system.
0   -/	hardies to enables cross bonden
y . b .	Explain the following terms -
	- Facebook wes to translate text
9 9	Pronologythus entre autrygolonory
1-1-1-1	-It is the study of organizing sounds
dank	Language Processing) system
)E OF	odt erom ni enipne noidelenart
67	Morphology oris : 1 zoponom
dent	It is questudy of construction of words
510-	From primitive meaningful units.
11	ios & Amaxon Fire whether on
c	Lexical a Arialysis = sund vadt
01-14	Lexican is the words & phrases in
	language. whexical analysis deals with
1	the recognition & lidentification of
9016	structure of sentences It divides the
6	paragraphs in sentences, phrases &
41	mortds. e-9. spoupart some est
	the tangel language e.g. English

Jet syntatic AnalysisIn this, the sequences are parsed as noun, verbs, adjective of other parts of sentences. In this phrase the gram mer of the sentence is analyzed in order to get relationship among different words in sentences. For example, "mango eats me" will be rejected by analyzer. e word sense disambigution.

- While using words that takes have more than one meaning we have to select the meaning which makes the most sense in context. For example, we are typically given a list of words associated words sends (e.g. from a dictionary or from an online re-