



### ASSIGNMENT # 1

Degree / Branch : B.Tech / CSE

Subject Code / Name : CSPE73 / NATURAL LANGUAGE PROCESSING  
(Elective)

Year / Semester : IV / VII

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1. Consider the grammar G given below.

S → NP VP | Wh NP VP | Wh NP Aux NP VP  
S → Aux NP VP  
S → VP  
NP → Proper-Noun | Personal Pronoun | NP PP  
NP → Determiner Nominal | Possessive Pronoun Noun  
Nominal → Noun  
Nominal → Noun Nominal  
Nominal → Adjective Nominal  
PP → Preposition NP  
VP → Verb  
VP → Verb NP

By using the above grammar, perform Top-Down as well as Bottom-Up Parsing for the following sentences and generate the corresponding parse trees.

- Show the lowest fare
- Show me the cheapest fare that has lunch
- Give me Sunday's flights arriving in Las Vegas from Memphis and New York City
- List all flights between five and seven p.m
- List all flights from Burbank to Denver
- Show me all flights that depart before ten a.m and have first class fares
- Show me all the flights leaving Baltimore
- Show me flights arriving within thirty minutes of each other
- Please list the flights from Charlotte to Long Beach arriving after lunch time
- Show me the last flight to leave
- Does American airlines have a flight between five a.m. and Six a.m.

- l. I would like to fly on American airlines.
  - m. Please repeat that.
  - n. Does American 487 have a first class section?
  - o. I need to fly between Philadelphia and Atlanta.
  - p. What is the fare from Atlanta to Denver?
  - q. Is there an American airlines flight from Philadelphia to Dallas?
  - r. What flights do you have from Burbank to Tacoma ?
  - s. Can you give me the same information for United?
  - t. I like to fly from Detroit to Saint Petersburg on Tuesday.
2. Draw the different parse trees for the following ambiguous Sentences by using the Grammar G given in Ques.No.1.
- a. Teacher strikes idle kids
  - b. Rice flies like an arrow
  - c. I shot an elephant in my pajamas
  - d. Can you book TWA flights?
3. Draw the pronunciation networks for the following words using Markov model and Hidden Markov Model.
- a. Believe
  - b. Receive
  - c. Yellow
  - d. Orange
  - e. Study
  - f. Slight
  - g. Planning
  - h. Natural
4. Match the following misspelt words with their corresponding Confusion matrices in Statistical Spell Checking.

absence – abcense, absance  
acceptable – acceptable  
accidentally/accidently – accidentally  
accommodate – accomodate, acommodate  
achieve – acheive  
acknowledge – acknowlege, aknowledge  
acquaintance – acquaintance, aquaintance  
beginning – begining  
believe – believe

calendar – calender  
category – catagory  
caught – cauhgt, caugt  
colleague – collaegue, colleague  
conscious – concious, consious  
definitely – definitely, definately, defiantly  
dilemma – dilema  
disappoint – disapoint  
embarrass – embarrass  
exceed – exced  
fluorescent – fluorescent  
foreign – foriegn  
friend – freind  
grateful – gratefull, greatful  
guarantee – garantee, garentee, garanty  
guidance – guidence  
harass – harrass  
height – heighth, heighth  
hierarchy – heirarchy  
ignorance – ignorance  
imitate – immitate  
intelligence – inteligence, intelligence  
kernel – kernal  
leisure – liesure  
library – libary, liberry  
miniature – miniture  
millennium – millenium, milennium  
necessary – neccessary, necessery  
occasionally – occasionaly, occassionally  
personnel – personell, personel  
precede – preceed  
presence – presance  
principle – principal  
professor – professer  
proof – prufe  
queue – que  
questionnaire – questionnaire, questionnair  
really – realy  
recommend – recomend, reccommend  
seize – sieze  
separate – seperate  
speech – speach, speeche  
surprise – suprise, surprize

their – there

until – untill

vacuum – vaccuum, vaccum, vacume

vehicle – vehical

weather – wether

welfare – welfare, welfair

whether – wether

writing – writting, writeing

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