

Assignment-4

This program ask question from the user then create facts according to the input. If someone replied with a sentence then this program will tokenize the sentence using nltk library then find the root or key word from the sentence then create the facts in the file 'factbase.txt'. Then the swipl will consult with the ASS.pl file and this pl file will consult with 'factbase.txt' and output the career suggestions according to the fact base created in the 'factbase.txt' file.

Example 1:

```
. what would you prefer computers or circuit?I love Computers
Do you have extra time to manage? (please reply in yes or no)no
Are you having logical or imaginary thinking?I am Logical
Do you like problem solving?(please reply in yes or no)yes
Do you like number_system?(please reply in yes or no)yes
Do you like maths?(please reply in yes or no)yes
Do you like probability and stats?(please reply in yes or no)yes
Do you like discrete maths?(please reply in yes or no)no
Are you interested in vlsi design?(please reply in yes or no)no
Do you know about android?(please reply in yes or no)no
Do you interested in information security?(please reply in yes or no)no
Do you like communication system?(please reply in yes or no)no
Do you like biology?(please reply in yes or no)o
Do you like algorithms design?(please reply in yes or no)yes
Do you like working on circuits?(please reply in yes or no)yno

Recommended Specializations:
1 : Data Engineering
2 : gap

Recommended Careers:

1 : Data Engineering

Recommended Branch: Computer Science
You have experience in details of computers and software works.
you are logical person. you are also good in probability,problem solving and number_system. You have exprience of comp
The careers that suitable for you are with ranking:
-1.) DATA SCIENTIST
-2.) DATA ANALYST
-3.) DATA RESEARCHER
-4.) SOFTWARE ENGINEER
-5.) QUALITY ASSURANCE ENGINEER

2 : gap

Recommendation: Gap Year
no database maintained
Sorry. We cannot help you because you have a variety of traits.
```

Example 2:

```
. what would you prefer computers or circuit?I love Computer
Do you have extra time to manage? (please reply in yes or no)no
Are you having logical or imaginary thinking?I am Logical person I like logics
Do you like problem solving?(please reply in yes or no)yes
Do you like number_system?(please reply in yes or no)no
Do you like maths?(please reply in yes or no)no
Do you like probability and stats?(please reply in yes or no)no
Do you like discrete maths?(please reply in yes or no)yes
Are you interested in vlsi design?(please reply in yes or no)no
Do you know about android?(please reply in yes or no)no
Do you interested in information security?(please reply in yes or no)no
Do you like communication system?(please reply in yes or no)no
Do you like biology?(please reply in yes or no)no
Do you like algorithms design?(please reply in yes or no)yes
Do you like working on circuits?(please reply in yes or no)yno

Recommended Specializations:
1 : Artificial Intelligence
2 : gap

➤ Recommended Careers:

1 : Artificial Intelligence

You have experience in details of computers and software works.
you are logical person.you are also good in discrete maths and problem solving. You have exprience of computer
The careers that suitable for you are with ranking:
-1.) AI ENGINEER
-2.) DATA ENGINEER
-3.) DATA ANALYST
-4.) NLP ENGINEER
-5.) DATA RESEARCHER
-6.) SOFTWARE ENGINEER
-7.) QUALITY ASSURANCE ENGINEER

2 : gap

Recommendation: Gap Year
no database maintained
Sorry. We cannot help you because you have a variety of traits.
```

Example 3:

```
what would you prefer computers or circuit?I love computer
Do you have extra time to manage? (please reply in yes or no)yes
Are you having logical or imaginary thinking?Logical person
Do you like problem solving?(please reply in yes or no)yes
Do you like number_system?(please reply in yes or no)yes
Do you like maths?(please reply in yes or no)yes
Do you like probability and stats?(please reply in yes or no)yes
Do you like discrete maths?(please reply in yes or no)yes
Are you interested in vlsi design?(please reply in yes or no)yes
Do you know about android?(please reply in yes or no)yes
Do you interested in information security?(please reply in yes or no)yes
Do you like communication system?(please reply in yes or no)no
Do you like biology?(please reply in yes or no)no
Do you like algorithms design?(please reply in yes or no)yes
Do you like working on circuits?(please reply in yes or no)no
```

Recommended Specializations:

- 1 : General Specialization
- 2 : gap

Recommended Careers:

- 1 : General Specialization

Recommended Branch: Computer Science

You have experience in details of computers and software works.

you have interest in app development,logical thinking, discrete_maths, solving_problems, number systems and pr

The careers that suitable for you are with ranking:

- 1.) AI ENGINEER
- 2.) DATA ENGINEER
- 3.) DATA ANALYST
- 4.) NLP ENGINEER
- 5.) DATA RESEARCHER
- 6.) DATA SCIENTIST
- 7.) COMPUTER SECURITY ENGINEER
- 8.) SYSTEM ENGINEER
- 9.) CLOUD SUPPORT ENGINEER
- 10.) INFORMATION SECURITY ENGINEER
- 11.) DATA SECURITY ENGINEER
- 12.) GAME DEVELOPMENT
- 13.) MOBILE APP DEVELOPMENT
- 14.) SOFTWARE ENGINEER
- 15.) QUALITY ASSURANCE ENGINEER

- 2 : gap

Recommendation: Gap Year

no database maintained

Sorry. We cannot help you because you have a variety of traits.

Example 4:

```
➤ what would you prefer computers or circuit?I love Computers
Do you have extra time to manage? (please reply in yes or no)No
Are you having logical or imaginary thinking?I love Logic
Do you like problem solving?(please reply in yes or no)no
Do you like number_system?(please reply in yes or no)no
Do you like maths?(please reply in yes or no)no
Do you like probability and stats?(please reply in yes or no)no
Do you like discrete maths?(please reply in yes or no)no
Are you interested in vlsi design?(please reply in yes or no)no
Do you know about android?(please reply in yes or no)yes
Do you interested in information security?(please reply in yes or no)no
Do you like communication system?(please reply in yes or no)no
Do you like biology?(please reply in yes or no)no
Do you like algorithms design?(please reply in yes or no)yes
Do you like working on circuits?(please reply in yes or no)yno
```

Recommended Specializations:

- 1 : Mobile Computing
- 2 : gap

Recommended Careers:

- 1 : Mobile Computing

Recommended Branch: Computer Science

You have experience in details of computers and software works.

you have interest in app development and logical_thinking.You have exprience of computers. So you can go for I

The careers that suitable for you are with ranking:

- 1.) GAME DEVELOPMENT
- 2.) MOBILE APP DEVELOPMENT
- 3.) SYSTEM ENGINEER
- 4.) SOFTWARE ENGINEER
- 5.) QUALITY ASSURANCE ENGINEER

- 2 : gap

Recommendation: Gap Year

no database maintained

Sorry. We cannot help you because you have a variety of traits.

Example 5:

```
what would you prefer computers or circuit? I love Circuits
Do you have extra time to manage? (please reply in yes or no) no
Are you having logical or imaginary thinking? I love logic
Do you like problem solving?(please reply in yes or no) yes
Do you like number_system?(please reply in yes or no) yes
Do you like maths?(please reply in yes or no) no
Do you like probability and stats?(please reply in yes or no) no
Do you like discrete maths?(please reply in yes or no) no
Are you interested in vlsi design?(please reply in yes or no) yes
Do you know about android?(please reply in yes or no) no
Do you interested in information security?(please reply in yes or no) no
Do you like communication system?(please reply in yes or no) no
Do you like biology?(please reply in yes or no) no
Do you like algorithms design?(please reply in yes or no) no
Do you like working on circuits?(please reply in yes or no) yes
```

Recommended Specializations:

```
1 : Vlsi Design
2 : gap
```

Recommended Careers:

```
1 : Vlsi Design
```

Recommended Branch: Electronics and Communication Engineering

You have experience in details of CIRCUITS and HARDWARE componenets.

you have interest in vlsi design and logical thinking. You have experience of circuits as well. So you can go

The careers that suitable for you are with ranking:

- 1.) EMBEDDING ENGINEER
- 2.) VLSI DESIGN ENGINEER
- 3.) VLSI FLOW ENGINEER
- 4.) QA ENGINEER
- 5.) VLSI DESIGN AND FLOW ENGINEER
- 6.) SYSTEM ENGINEER

```
2 : gap
```

Recommendation: Gap Year

no database maintained

Sorry. We cannot help you because you have a variety of traits.

Code:-

IN PYTHON

```
!apt install swi-prolog
!pip install pyswip
import nltk
nltk.download('punkt')
from nltk.tokenize import word_tokenize
from nltk.stem import PorterStemmer
from pyswip import Prolog
inplist = []
f = open("/content/drive/MyDrive/Extra/factbase.txt", 'w')

inp=input('what would you prefer computers or circuit?')
words = word_tokenize(inp)
inplist=inplist+words
if "computers" in inplist or "computer" in inplist or "Computers" in inplist or "Computer" in inplist:
    f.write("computers_or_circuits(computers).\n")
elif "circuits" in inplist or "circuit" in inplist:
    f.write("computers_or_circuits(circuits).\n")

inp=input('Do you have extra time to manage? (please reply in yes or no)')
words = word_tokenize(inp)
inplist=inplist+words

if "yes" in words:
    f.write("extra_time(yes).\n")

elif "no" in words:
    f.write("extra_time(no).\n")

inp=input('Are you having logical or imaginary thinking?')
words = word_tokenize(inp)
inplist=inplist+words

if "logical" in inplist or "logic" in inplist:
    f.write("logic_or_nonlogic(logic).\n")
elif "imaginary" in inplist or "image" in inplist:
```

```
f.write("logic_or_nonlogic(imaginary).\n")
```

```
inp=input('Do you like problem solving?(please reply in yes or no)')
```

```
words = word_tokenize(inp)
```

```
inplist+=words
```

```
if "yes" in words:
```

```
    f.write("solving_problems(solving_problems).\n")
```

```
elif "no" in words:
```

```
    f.write("solving_problems(solving_problems).\n")
```

```
inp=input('Do you like number_system?(please reply in yes or no)')
```

```
words = word_tokenize(inp)
```

```
inplist+=words
```

```
if "yes" in words:
```

```
    f.write("number_system(yes).\n")
```

```
elif "no" in words:
```

```
    f.write("number_system(no).\n")
```

```
inp=input('Do you like maths?(please reply in yes or no)')
```

```
words = word_tokenize(inp)
```

```
inplist+=words
```

```
if "yes" in words:
```

```
    f.write("maths(yes).\n")
```

```
elif "no" in words:
```

```
    f.write("maths(no).\n")
```

```
inp=input('Do you like probability and stats?(please reply in yes or no)')
```

```
words = word_tokenize(inp)
```

```
inplist+=words
```

```
if "yes" in words:  
    f.write("probability(yes).\n")
```

```
elif "no" in words:  
    f.write("probability(no).\n")
```

```
inp=input('Do you like discrete maths?(please reply in yes or no)')  
words = word_tokenize(inp)  
inplist+=words
```

```
if "yes" in words:  
    f.write("discrete_maths(yes).\n")
```

```
elif "no" in words:  
    f.write("discrete_maths(no).\n")
```

```
inp=input('Are you interested in vlsi design?(please reply in yes or no)')  
words = word_tokenize(inp)  
inplist+=words
```

```
if "yes" in words:  
    f.write("vlsi_design(yes).\n")
```

```
elif "no" in words:  
    f.write("vlsi_design(no).\n")
```

```
inp=input('Do you know about android?(please reply in yes or no)')  
words = word_tokenize(inp)  
inplist+=words
```

```
if "yes" in words:  
    f.write("android(yes).\n")
```

```
elif "no" in words:  
    f.write("android(no).\n")
```



```
inp=input('Do you interested in information security?(please reply in yes or no)')
words = word_tokenize(inp)
inplist+=words
if "yes" in words:
    f.write("info_security(yes).\n")

elif "no" in words:
    f.write("info_security(no).\n")
```

```
inp=input('Do you like communication system?(please reply in yes or no)')
words = word_tokenize(inp)
inplist+=words
if "yes" in words:
    f.write("communication_system(yes).\n")

elif "no" in words:
    f.write("communication_system(no).\n")
```

```
inp=input('Do you like biology?(please reply in yes or no)')
words = word_tokenize(inp)
inplist+=words
if "yes" in words:
    f.write("biology(yes).\n")

elif "no" in words:
    f.write("biology(no).\n")
```

```
inp=input('Do you like algorithms design?(please reply in yes or no)')
words = word_tokenize(inp)
inplist+=words
if "yes" in words:
    f.write("algorithm(yes).\n")
```

```

elif "no" in words:
    f.write("algorithm(no).\n")

inp=input('Do you like working on circuits?(please reply in yes or no)y')
words = word_tokenize(inp)
inplist+=words

if "yes" in words:
    f.write("circuits(yes).\n")

elif "no" in words:
    f.write("circuits(no).\n")

f.close()

swipl = Prolog()
swipl.consult("/content/drive/MyDrive/Extra/ASSIGNMENT_1_PROGRAM.pl")
print("\n\nRecommended Specializations:")
find_specialization = list(swipl.query("find_specialization(Branch)."))

for i in range(0,len(find_specialization)):
    var = find_specialization[i]['Branch'].decode('utf-8')
    print(i+1, ' : ',var)

YESprint("Recommended Careers:\n")

for i in range(0,len(find_specialization)):
    var = find_specialization[i]['Branch'].decode('utf-8')
    print(i+1, ' : ',var)
    print("\n")

if(var=='Data Engineering'):
    print('Recommended Branch: Computer Science')
    print('You have experience in details of computers and software works.')
    print('you are logical person. you are also good in probability,problem solving and number
_system. You have exprience of computers. So, you can take Data Engineering as the speciali
zation for higher studies.')
    print('The careers that suitable for you are with ranking:')

```

```
print('-1.) DATA SCIENTIST')
print('-2.) DATA ANALYST')
print('-3.) DATA RESEARCHER')
print('-4.) SOFTWARE ENGINEER')
print('-5.) QUALITY ASSURANCE ENGINEER')
```

```
if( var=="Artificial Intelligence"):
```

```
    print('You have experience in details of computers and software works.')
    print('you are logical person.you are also good in discrete maths and problem solving. You
have exprience of computers. So, you can take Artificial Intelligence as the specialization for
higher studies.')
    print('The careers that suitable for you are with ranking:')
    print('-1.) AI ENGINEER')
    print('-2.) DATA ENGINEER')
    print('-3.) DATA ANALYST')
    print('-4.) NLP ENGINEER')
    print('-5.) DATA RESEARCHER')
    print('-6.) SOFTWARE ENGINEER')
    print('-7.) QUALITY ASSURANCE ENGINEER')
```

```
if(var=="Mobile Computing"):
```

```
    print('Recommended Branch: Computer Science')
    print('You have experience in details of computers and software works.')
    print('you have interest in app development and logical_thinking.You have exprience of c
omputers. So you can go for Mobile Computing as a specialization for higher studies.')
    print('The careers that suitable for you are with ranking:')
    print('-1.) GAME DEVELOPMENT')
    print('-2.) MOBILE APP DEVELOPMENT')
    print('-3.) SYSTEM ENGINEER')
    print('-4.) SOFTWARE ENGINEER')
    print('-5.) QUALITY ASSURANCE ENGINEER')
```

```
if(var=="Computer Security"):
```

```
    print('Recommended Branch: Computer Science')
    print('You have experience in details of computers and software works.')
```

```
print('you have interest in number system,logical thinking, probability and information security. You have experience of computers as well. So you can go for Computer Security as a specialization for higher studies .')
```

```
print('The careers that suitable for you are with ranking:')
```

```
print('-1.) COMPUTER SECURITY ENGINEER')
```

```
print('-2.) SYSTEM ENGINEER')
```

```
print('-3.) CLOUD SUPPORT ENGINEER')
```

```
print('-4.) INFORMATION SECURITY ENGINEER')
```

```
print('-5.) DATA SECURITY ENGINEER')
```

```
print('-6.) SOFTWARE ENGINEER')
```

```
print('-7.) QUALITY ASSURANCE ENGINEER')
```

```
if(var=="General Specialization"):
```

```
print('Recommended Branch: Computer Science')
```

```
print('You have experience in details of computers and software works.')
```

```
print('you have interest in app development,logical thinking, discrete_maths, solving_problems, number systems and probability.You have experience of computers. So you can go for without specialization for higher studies.')
```

```
print('The careers that suitable for you are with ranking:')
```

```
print('-1.) AI ENGINEER')
```

```
print('-2.) DATA ENGINEER')
```

```
print('-3.) DATA ANALYST')
```

```
print('-4.) NLP ENGINEER')
```

```
print('-5.) DATA RESEARCHER')
```

```
print('-6.) DATA SCIENTIST')
```

```
print('-7.) COMPUTER SECURITY ENGINEER')
```

```
print('-8.) SYSTEM ENGINEER')
```

```
print('-9.) CLOUD SUPPORT ENGINEER')
```

```
print('-10.) INFORMATION SECURITY ENGINEER')
```

```
print('-11.) DATA SECURITY ENGINEER')
```

```
print('-12.) GAME DEVELOPMENT')
```

```
print('-13.) MOBILE APP DEVELOPMENT')
```

```
print('-14.) SOFTWARE ENGINEER')
```

```
print('-15.) QUALITY ASSURANCE ENGINEER')
```

```
if(var=="Vlsi Design"):
```

```
print('Recommended Branch: Electronics and Communication Engineering')
```

```

print('You have experience in details of CIRCUITS and HARDWARE componenets.')
print('you have interest in vlsi design and logical thinking. You have experience of circuits
as well. So you can go for VLSI Design Flow as a specialization for higher studies.')
print('The careers that suitable for you are with ranking:')
print('-1.) EMBEDDING ENGINEER')
print('-2.) VLSI DESIGN ENGINEER')
print('-3.) VLSI FLOW ENGINEER')
print('-4.) QA ENGINEER')
print('-5.) VLSI DESIGN AND FLOW ENGINEER')
print('-6.) SYSTEM ENGINEER')

```

```

if(var=="Communication and Programming"):
    print('Recommended Branch: Electronics and Communication Engineering')
    print('You have experience in details of CIRCUITS and HARDWARE componenets.')
    print('you have interest in communication system and logical thinking. You have experienc
e of circuits as well. So you can go for Communication System and programming as a speciali
zation for higher studies.')
    print('The careers that suitable for you are with ranking:')
    print('-1.) EMBEDDING ENGINEER')
    print('-2.) COMMUNICATION ENGINEER')
    print('-3.) RTL DESIGNER')
    print('-4.) GDS ENGINEER')
    print('-5.) SYSTEM ENGINEER')

```

```

if(var=="Computational Biology"):
    print('Recommended Branch: Computational Biology')
    print('You have experience in details of COMPUTERS and BIOLOGY.')
    print('you have interest in number system,biology and algorithm. You have experience of
computers as well. So you can go for Computational Biology as a specialization for higher stu
dies.')
    print('The careers that suitable for you are with ranking:')
    print('-1.) COMPUTATIONAL ENGINEER')
    print('-2.) SOFTWARE ENGINEER')
    print('-3.) SYSTEM ENGINEER')

```

```

if(var=='gap'):
    print('Recommendation: Gap Year ')

```

```
print('no database maintained')
print('Sorry. We cannot help you because you have a variety of traits.')
```

```
print('\n')
```

IN PROLOG

```
find_specialization(Branch) :-
consult('/content/drive/MyDrive/Extra/factbase.txt'),subject(Branch).
```

```
:-dynamic(logic_or_nonlogic/1).
:-dynamic(computers_or_circuits/1).
:-dynamic(solving_problems/1).
:-dynamic(number_system/1).
:-dynamic(probability/1).
:-dynamic(algorithm/1).
:-dynamic(maths/1).
:-dynamic(discrete_maths/1).
:-dynamic(extra_time/1).
:-dynamic(info_security/1).
:-dynamic(android/1).
:-dynamic(vlsi_design/1).
:-dynamic(biology/1).
:-dynamic(communication_system/1).
:-dynamic(circuits/1).
```

```
subject("Data Engineering"):-
```

logic_or_nonlogic(logic),
computers_or_circuits(computers),
solving_problems(solving_problems),
number_system(yes),
probability(yes),
algorithm(yes),
maths(yes),
discrete_maths(no),
extra_time(no),
info_security(no).

subject("Artificial Intelligence):-

logic_or_nonlogic(logic),
discrete_maths(yes),
number_system(no),
solving_problems(solving_problems),
computers_or_circuits(computers),
maths(no),
algorithm(yes),
extra_time(no),
info_security(no).

subject("General Specialization):-

logic_or_nonlogic(logic),
discrete_maths(yes),
android(yes),
solving_problems(solving_problems),

number_system(yes),
maths(yes),
algorithm(yes),
probability(yes),
extra_time(yes),
info_security(yes).

subject("Mobile Computing):-
logic_or_nonlogic(logic),
android(yes),
computers_or_circuits(computers),
solving_problems(no_solving_problems),
algorithm(yes),
extra_time(no),
info_security(no).

subject("Vlsi Design):-
logic_or_nonlogic(logic),
circuits(yes),
computers_or_circuits(circuits),
vlsi_design(yes),
solving_problems(solving_problems).

subject("Computer Security):-
logic_or_nonlogic(logic),
info_security(yes),

probability(yes),
android(no),
solving_problems(solving_problems),
number_system(yes),
extra_time(no),
computers_or_circuits(computers),
maths(yes),
algorithm(no).

subject("Computational Biology):-
logic_or_nonlogic(imaginary),
computers_or_circuits(computers),
biology(yes),
maths(no),
number_system(yes),
solving_problems(no_solving_problems).

subject("Communication and Programming):-
circuits(yes),
solving_problems(solving_problems),
communication_system(yes),
vlsi_design(no),
computers_or_circuits(circuits).

subject("gap):-nl.