

# AVVISARE

## ELECTIVE ADVISORY SYSTEM

This is an elective advisory system for IIITD MTech. CSE students. There are 4 specializations considered:

1. Artificial Intelligence
2. Data Engineering
3. Information Security
4. Without Specialization

Let's firstly see the output of Prolog program, so that at later stage it is easier to comprehend the program and get meaning out of it.

There is one folder named **Elective\_Advisory\_System**

There are 3 files in it, namely:

- main.pl
- elective.pl
- temp.pl

Firstly, the user need to consult main.pl file and then write

?- start.

```
% c:/Users/hp/Desktop/SUBJECTS/AI/Assignment/Assignment 1/Elective_Advisory_System/main.pl compiled 0.00 sec, 16 clauses
?- start.
```

```
-----
Welcome to Avvisare: Elective Advisory System
-----
```

```
Are you confused about which all electives to take as per career you want to pursue in future?
If yes, you are at right place, I will help you out.
If no, nevertheless I would help you to validate your electives choice.
```

```
By the way, My name is Avvisare. What's your name? (Nickname will also work)
```

Now it is asking the name, type it.

After you type name, following screen message appears and now the user should enter specialization.

-----  
Welcome to Avvisare: Elective Advisory System  
-----

Are you confused about which all electives to take as per career you want to pursue in future?  
If yes, you are at right place, I will help you out.  
If no, nevertheless I would help you to validate your electives choice.

By the way, My name is Avvisare. What's your name? (Nickname will also work) 'Simran'.

Hi, Simran. Let's together explore the choices for electives.

What's the specialization that you have planned for?

-> Artificial Intelligence  
-> Data Engineering  
-> Information Security  
-> Without Specialization

|:

Enter the specialization and then it would prompt some questions that the user needs to answer so as to get informed advice from Avvisare.

Hi, Simran. Let's together explore the choices for electives.

What's the specialization that you have planned for?

-> Artificial Intelligence  
-> Data Engineering  
-> Information Security  
-> Without Specialization

|: 'Artificial Intelligence'.

Great, now you have to answer a few questions concerning yourself.

Kindly respond with numbers from 0 to 5:

0 - No interest  
1 - Low interest  
2 - Medium interest  
3 - High interest  
4 - Very high interest  
5 - This comes in my dreams and I love it beyond moon and stars.

Level of interest in developing supervised and unsupervised ML models? |: 5.

Level of interest in logic, reasoning, and knowledge representation? |: 2.

Level of interest in designing of algorithms and checking correctness? |: 1.

Level of interest in looking into data and catching insights? |: 3.

Level of interest in processing of natural language text and processing it? |: 1.

Level of interest in deep learning? |: 0.

To get the list electives that you can take.

Type should\_take(X) as next command.

I really hope that the suggestions are valuable.

**true.**

?-

Now, as said in previous message, so as to have a look at elective that you can choose type the following.

?- should\_take(X).

Then here, it can be seen that 3 electives are recommended to the user based on interest.

```
?- should_take(X).
```

---

**MACHINE LEARNING**

COURSE CODE: CSE543

COURSE DETAILS: <http://techtree.iiitd.edu.in/viewDescription/filename?=CSE343>

Feedback or Suggestion from Seniors:

The course is really awesome, but only theoretical concepts are covered but you can take help of TAs for practical aspects. It goes indepth in theory. It is a little heavy course in terms of workload, so be consistent. This course is helpful in placements for AI role.

---

```
X = 'ML' ;
```

---

**ARTIFICIAL INTELLIGENCE**

COURSE CODE: CSE643

COURSE DETAILS: <http://techtree.iiitd.edu.in/viewDescription/filename?=CSE643>

Feedback or Suggestion from Seniors:

It really goes deep into AI. The three main aspects are covered Logic, Reasoning and Knowledge Representation. The course is okay in terms of workload Assignments really require much efforts but they enhance skills.

---

```
X = 'AI' ;
```

---

**DATA MINING**

COURSE CODE: CSE506

COURSE DETAILS: <http://techtree.iiitd.edu.in/viewDescription/filename?=CSE506>

Feedback or Suggestion from Seniors:

This course is okay in terms of workload and quite practical It gives you good hands on practice. The marking is really tight. It is tough to get good grade because almost everyone performs well.

---

```
X = 'DMG' ;
```

```
false.
```

```
?-
```

Let's also look at another example as well.

?- start.

---

Welcome to Avvisare: Elective Advisory System

---

Are you confused about which all electives to take as per career you want to pursue in future?

If yes, you are at right place, I will help you out.

If no, nevertheless I would help you to validate your electives choice.

By the way, My name is Avvisare. What's your name? (Nickname will also work) 'Tia'.

Hi, Tia. Let's together explore the choices for electives.

What's the specialization that you have planned for?

-> Artificial Intelligence

-> Data Engineering

-> Information Security

-> Without Specialization

|: 'Information Security'.

Great, now you have to answer a few questions concerning yourself.

Kindly respond with numbers from 0 to 5:

0 - No interest

1 - Low interest

2 - Medium interest

3 - High interest

4 - Very high interest

5 - This comes in my dreams and I love it beyond moon and stars.

Level of interest in knowing about theoretical aspects of cryptographic algorithm? 5.

Level of interest in computer networks and network security? |: 2.

Level of interest in knowing practical aspects of cryptographic algorithms? |: 1.

Level of interest in software vulnerabilities, access control primitives? |: 1.

To get the list electives that you can take.

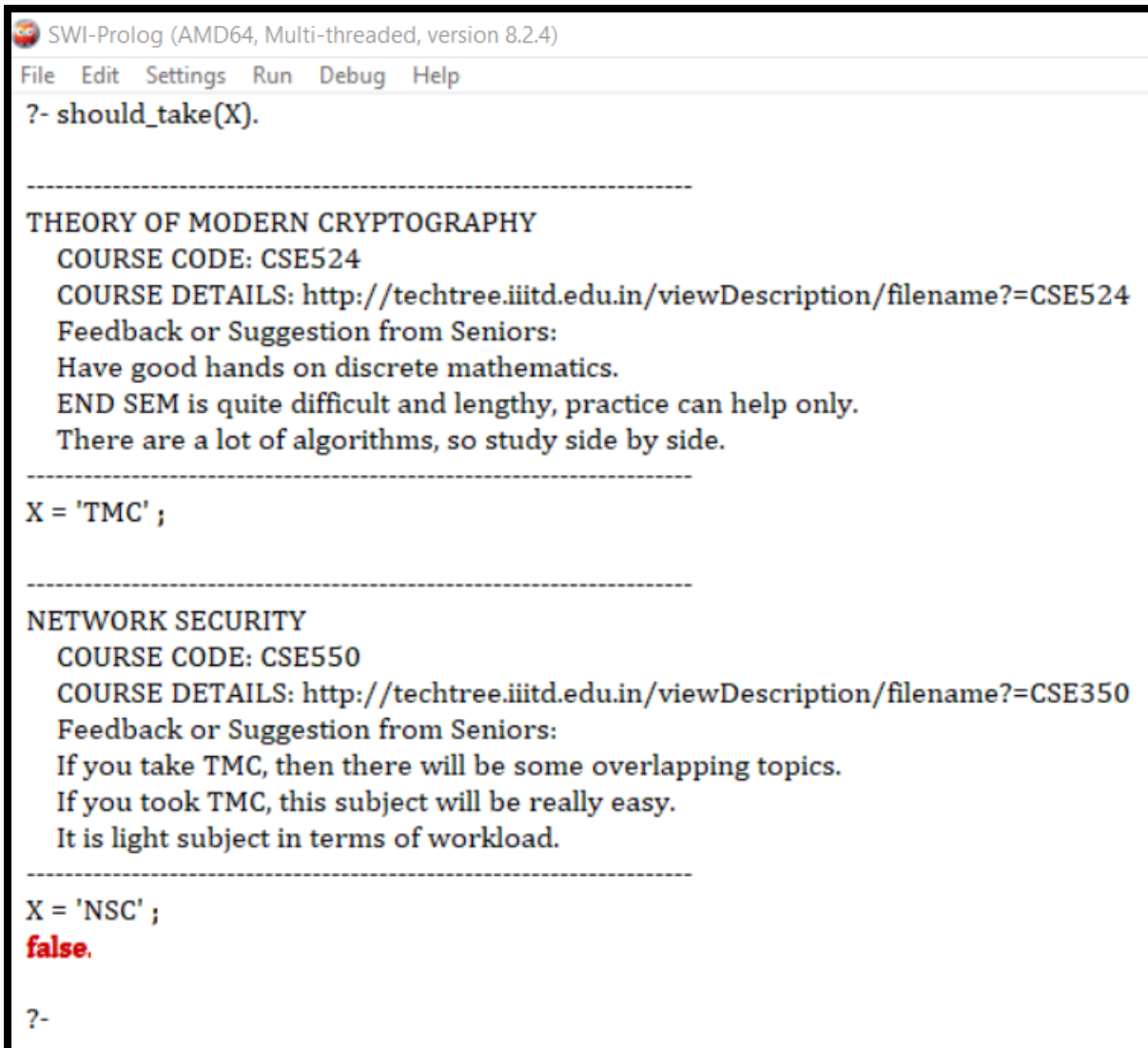
Type should\_take(X) as next command.

I really hope that the suggestions are valuable.

**true.**

### Corresponding output:

According to Avvisare, the user should take TMC and NSC as per his/her interest.

A screenshot of the SWI-Prolog (AMD64, Multi-threaded, version 8.2.4) interface. The window has a menu bar with 'File', 'Edit', 'Settings', 'Run', 'Debug', and 'Help'. The main text area shows the following content:

```
?- should_take(X).  
  
-----  
THEORY OF MODERN CRYPTOGRAPHY  
  COURSE CODE: CSE524  
  COURSE DETAILS: http://techtree.iiitd.edu.in/viewDescription/filename?=CSE524  
  Feedback or Suggestion from Seniors:  
  Have good hands on discrete mathematics.  
  END SEM is quite difficult and lengthy, practice can help only.  
  There are a lot of algorithms, so study side by side.  
  
-----  
X = 'TMC' ;  
  
-----  
NETWORK SECURITY  
  COURSE CODE: CSE550  
  COURSE DETAILS: http://techtree.iiitd.edu.in/viewDescription/filename?=CSE350  
  Feedback or Suggestion from Seniors:  
  If you take TMC, then there will be some overlapping topics.  
  If you took TMC, this subject will be really easy.  
  It is light subject in terms of workload.  
  
-----  
X = 'NSC' ;  
false.  
  
?-
```

Now, let's understand program as well that goes behind. Though comments are written so as to make the code understandable.

First of all, the files that would be used, will be consulted.

```
% starting
start:-
    reconsult('C:/Users/hp/Desktop/SUBJECTS/AI/Assignment/Assignment 1/Elective_Advisory_System/elective.pl'),nl,
    reconsult('C:/Users/hp/Desktop/SUBJECTS/AI/Assignment/Assignment 1/Elective_Advisory_System/temp.pl'),nl,
    advise.
```

This piece of code helps to display welcome note, ask name and then ask for specialisation.

```
%starting welcome note
advise:-
    write('-----'),nl,
    write('Welcome to Avisare: Elective Advisory System'),nl,
    write('-----'),nl,
    write('Are you confused about which all electives to take as per career you want to pursue in future?'),nl,
    write('If yes, you are at right place, I will help you out. '),nl,
    write('If no, nevertheless I would help you to validate your electives choice. '),nl,nl,
    write('By the way, My name is Avisare. What\'s your name? (Nickname will also work) '),
    read(Name),nl,
    format('Hi, ~w. Let\'s together explore the choices for electives.',[Name]),nl,
    write('What\'s the specialization that you have planned for?'),nl,
    write('-> Artificial Intelligence'),nl,
    write('-> Data Engineering'),nl,
    write('-> Information Security'),nl,
    write('-> Without Specialization'),nl,
    read(Spl),
    specialization(Spl).
```

Now, whatever interest levels are as per user, would be saved in temp.pl file later, so before that it's imp to clear it so that any previous data isn't present.

```
% to clear all temporary data from temp.pl data file
clear:-
    abolish(interest/2),
    tell('C:/Users/hp/Desktop/SUBJECTS/AI/Assignment/Assignment 1/Elective_Advisory_System/temp.pl'),
    told.
```

This helps to prompt for the level of interest of the user in particular elective. It also asserts the values inputted.

```
% Prompts for the level of interest in particular domain
prompt_interest_levels(Interest, Title):-
    write("Level of interest in "),
    write(Title),
    write(" "),
    read(Interest_Level),
    assert(interest(Interest, Interest_Level)). % assert means store into memory
```



After having looked at output, now this code is self-explanatory.

```
% simple display for parameters for interest
interest_instructions:-
    nl,
    write("Great, now you have to answer a few questions concerning yourself."),nl,
    write("Kindly respond with numbers from 0 to 5:"),nl,nl,
    write("0 - No interest"),nl,
    write("1 - Low interest"),nl,
    write("2 - Medium interest"),nl,
    write("3 - High interest"),nl,
    write("4 - Very high interest"),nl,
    write("5 - This comes in my dreams and I love it beyond moon and stars."),nl,nl.
```

This will be used so that the user knows what to do next after the interest levels are entered.

```
% to display line
display_line:-
    format('~n To get the list electives that you can take.
    Type should_take(X) as next command.
    I really hope that the suggestions are valuable. ~n').
```

These will be set of questions with respect to different specializations. In screenshot, it's only shown for Artificial Intelligence and Data Engineering.

```
% set of questions to be asked if specialisation is
% Artificial Intelligence
ai_menu:-
    clear,
    prompt_interest_levels('ML', "developing supervised and unsupervised ML models?"),
    prompt_interest_levels('AI', "logic, reasoning, and knowledge representation?"),
    prompt_interest_levels('GA', "designing of algorithms and checking correctness?"),
    prompt_interest_levels('DMG', "looking into data and catching insights?"),
    prompt_interest_levels('NLP', "processing of natural language text and processing it?"),
    prompt_interest_levels('DL', "deep learning?"),
    save.

% set of questions to be asked if specialisation is
% Data Engineering
de_menu:-
    clear,
    prompt_interest_levels('ML', "developing models that can solve supervised and unsupervised ML task?"),
    prompt_interest_levels('DBSI', "databases and their internals?"),
    prompt_interest_levels('GA', "designing of algorithms and checking correctness?"),
    prompt_interest_levels('DMG', "looking into data and catching insights?"),
    prompt_interest_levels('NLP', "processing of natural language text and processing it?"),
    prompt_interest_levels('DW', "collecting and managing data from varied sources to provide meaningful business insights.?"),
    save.
```

Now this really helps to save those asserted interest levels for use by inference engine.

```
% to save the new temporary info for use by inference engine
save:-
    tell('C:/Users/hp/Desktop/SUBJECTS/AI/Assignment/Assignment 1/Elective_Advisory_System/temp.pl'),
    listing(interest),
    told.
```

These are the rules fired for different specializations.

```
specialization('Artificial Intelligence'):-
    interest_instructions,
    ai_menu,
    display_line.

specialization('Data Engineering'):-
    interest_instructions,
    de_menu,
    display_line.

specialization('Information Security'):-
    interest_instructions,
    is_menu,
    display_line.

specialization('Without Specialization'):-
    interest_instructions,
    ws_menu,
    display_line.
```

Now that was all about main.pl, next comes elective.pl

This rule decides if that elective can be taken or not based on threshold of 2.

```
can_take_elective(X):-
    interest(X,InterestLevel),
    InterestLevel >= 2.
```

Then information is stored for different electives. (Showing only 2 electives here).

```
elective('ML'):-
    can_take_elective('ML'),
    nl,
    write('-----'),nl,
    format('MACHINE LEARNING
    COURSE CODE: CSE543
    COURSE DETAILS: http://techtree.iiitd.edu.in/viewDescription/filename?=CSE343
    Feedback or Suggestion from Seniors:
    The course is really awesome, but only theoretical concepts are covered
    but you can take help of TAs for practical aspects. It goes indepth in theory.
    It is a little heavy course in terms of workload, so be consistent.
    This course is helpful in placements for AI role. '),nl,
    write('-----').

elective('AI'):-
    can_take_elective('AI'),
    nl,
    write('-----'),nl,
    format('ARTIFICIAL INTELLIGENCE
    COURSE CODE: CSE643
    COURSE DETAILS: http://techtree.iiitd.edu.in/viewDescription/filename?=CSE643
    Feedback or Suggestion from Seniors:
    It really goes deep into AI. The three main aspects are covered
    Logic, Reasoning and Knowledge Representation. The course is okay in terms of workload
    Assignments really require much efforts but they enhance skills. '),nl,
    write('-----').
```



After, looking at output now this rule is pretty clear. *should\_take(X)* is true if *elective(X)* is true, which will further be true if *can\_take\_elective(X)* is true which will be true on the basis of threshold of interest level.

```
should_take(X) :-  
    elective(X).
```