

AI Career Advisory system for the B.tech graduate students

Based on their skill-set and their interests. We have designed a career advisory system that will logically check for conditions a specific field requires to master it.

Based on the passing of the conditions, Output is generated, which suggests what field to take.

It also tells the different possible sub-branches in a particular field.

To begin the program in prolog ,

Just enter

lets_begin .

The program will automatically start running. It will ask some questions, answers them, and one will know which branch to take for the M.Tech .

SCREENSHOTS OF THE PROGRAM:

1. Output for the conditions matching with Computational Biology:

```
SWI-Prolog (AMD64, Multi-threaded, version 8.2.4)
File Edit Settings Run Debug Help
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?-
Warning: c:/users/udit kumar/desktop/demos/demo2.pl:21:
Warning: Singleton variables: [Field]
Warning: c:/users/udit kumar/desktop/demos/demo2.pl:447:
Warning: Singleton variables: [First]
% c:/Users/udit kumar/Desktop/Demos/demo2.pl compiled 0.02 sec, 82 clauses
?- lets_begin .
Confuse which carrer to opt, which courses will be the best for you?
Do not worry we have made a perfect advisory system to resolve all your queries
NOTE:-Write the number of the option you are interested in, as shown in the options, followed by a dot "." to answer any question

Are you anyhow interested in Algorithms and Data structures?
0 Yes Absolutely
1 No
|: 0 .
are you interested in statics and probability?
0 Yes Absolutely
1 No
|: 1 .
Do you like the field of biology also?
0 Yes Absolutely
1 No
|: 0 .
Do you like to think logically or in an imaginary way?
0 I Like to think logically more.
1 No, I like to think more in an imaginary way.
|: 1 .
Do you admire mathematics?
0 Yes Absolutely
1 No
|: 1 .
Do you have an interest in the number system?
0 Yes Absolutely
1 No
|: 0 .
Which one do you like the most, circuits or computers?
0 I am more interested in computer rather than circuits.
1 I am more interested in ciruits not computers.
|: 0 .
Are you good at solving puzzles and problems?
0 Yaa, I am good at solving puzzles and problems.
1 No, I am not good at solving puzzles and problems.
|: 0 .
As you are an M.tech Student, Recommended Branch: Computational Biology
It seems you have experience with Computers and also you shows a great interest in Biology.
You have Imaginary Thinking and like to solve problems.
For Higher Studies, you can opt the field of "COMPUTATIONAL BIOLOGY," as You have a profound interest in Biology, Number systems, and solving real-world problems.
We are suggesting some career options with highest priority as "1", as per your skillset, I want the best thing to happen for you, Have a bright future :
#1.) COMPUTATIONAL ENGINEER
#2.) SOFTWARE ENGINEER
#3.) SYSTEM ENGINEER
true.
?-
```

2. Case for the Branch : Electronics and Communication.

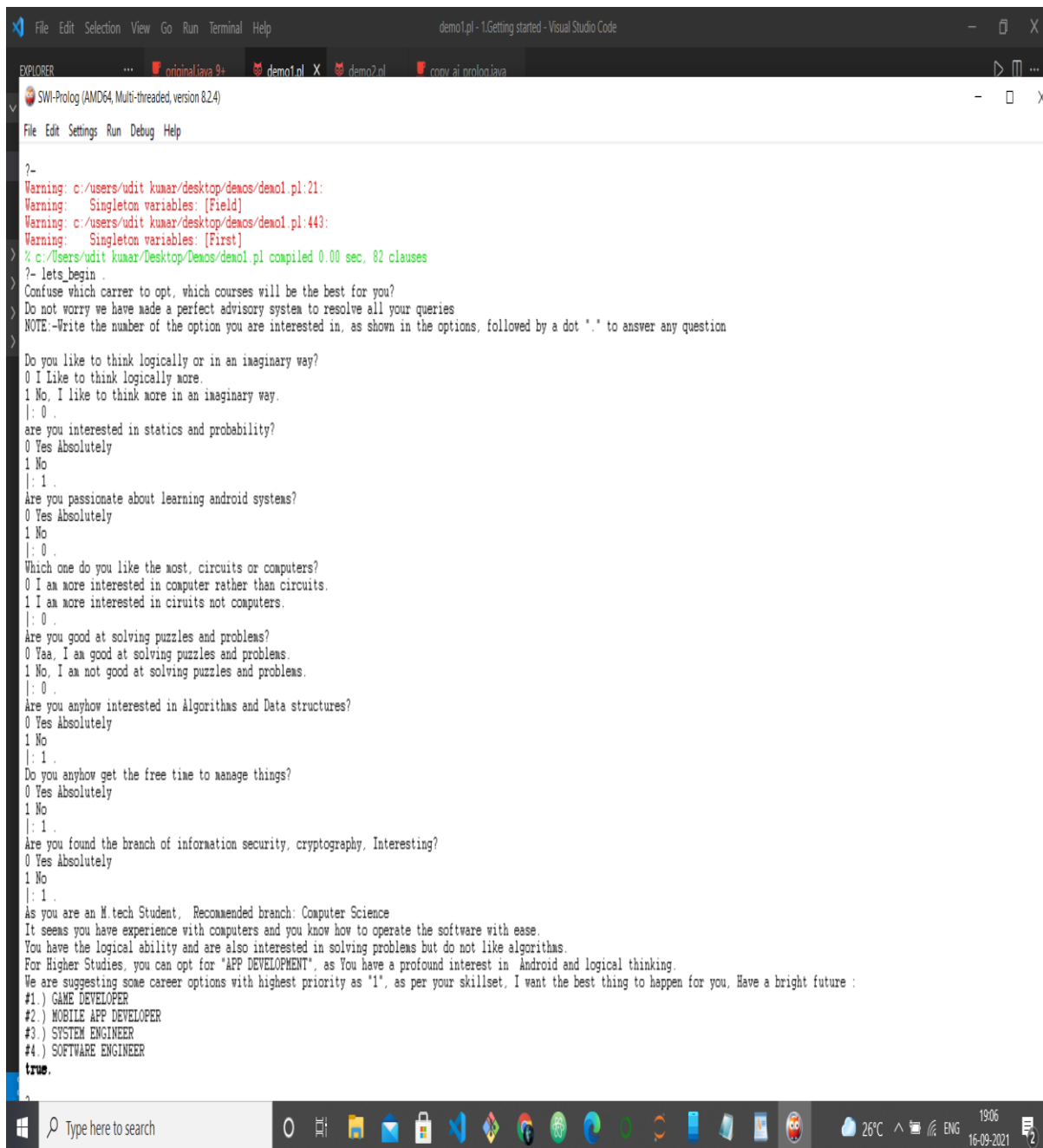
```
SWI-Prolog (AMD64, Multi-threaded, version 8.2.4)
File Edit Settings Run Debug Help
true.

?- lets_begin .
Confuse which carrer to opt, which courses will be the best for you?
Do not worry we have made a perfect advisory system to resolve all your queries
NOTE:-Write the number of the option you are interested in, as shown in the options, followed by a dot "." to answer any question

Do you like to think logically or in an imaginary way?
0 I Like to think logically more.
1 No, I like to think more in an imaginary way.
|: 1 .
Which one do you like the most, circuits or computers?
0 I am more interested in computer rather than circuits.
1 I am more interested in ciruits not computers.
|: 1 .
Do you know about the circuits, and does their system make you curious to learn them more?
0 Yes Absolutely
1 No
|: 0 .
Are you good at solving puzzles and problems?
0 Yaa, I am good at solving puzzles and problems.
1 No, I am not good at solving puzzles and problems.
|: 0 .
Do you have an interest in the communication system?
0 Yes Absolutely
1 No
|: 0 .
Are you passionate about circuits and VLSI design?
0 Yes Absolutely
1 No
|: 1 .
As you are an M.tech Student, Recommended Branch: Electronics and Communication
It seems you have experience with Circuits and Hardware componenets.
You can solve problems.
For Higher Studies, you can opt the field of "ELECTRONICS AND COMMUNICATION ENGINEER," as You have a profound interest in Circuit Design, Communication systems, and Circuits.
We are suggesting some career options with highest priority as "1", as per your skillset, I want the best thing to happen for you, Have a bright future :
#1.)COMMUNICATION ENGINEER
#2.)EMBEDDING ENGINEER
#3.) GDS ENGINEER
#4.)RTL DESIGNER
#5.) SYSTEM ENGINEER
true.

?-
```

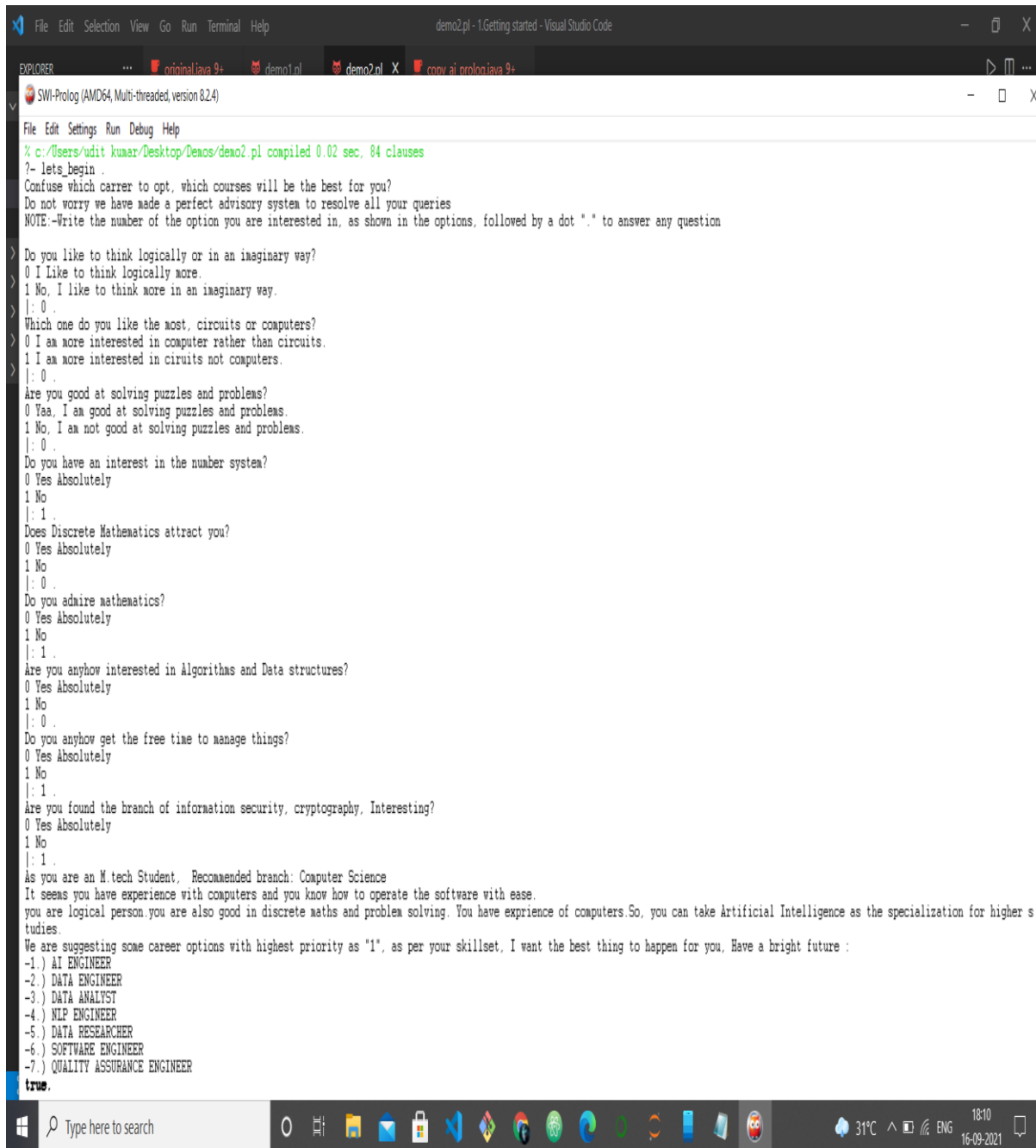
3. Output for the Brach : Android/APP Development:



```
demo1.pl - 1.Getting started - Visual Studio Code
EXPLORER
SWI-Prolog (AMD64, Multi-threaded, version 8.2.4)
File Edit Settings Run Debug Help

?-
Warning: c:/users/udit kumar/desktop/demos/demo1.pl:21:
Warning: Singleton variables: [Field]
Warning: c:/users/udit kumar/desktop/demos/demo1.pl:443:
Warning: Singleton variables: [First]
% c:/Users/udit kumar/Desktop/Demos/demo1.pl compiled 0.00 sec, 82 clauses
?- lets_begin .
> Confuse which carrier to opt, which courses will be the best for you?
> Do not worry we have made a perfect advisory system to resolve all your queries
> NOTE:-Write the number of the option you are interested in, as shown in the options, followed by a dot "." to answer any question
>
Do you like to think logically or in an imaginary way?
0 I Like to think logically more.
1 No, I like to think more in an imaginary way.
|: 0 .
are you interested in statics and probability?
0 Yes Absolutely
1 No
|: 1 .
Are you passionate about learning android systems?
0 Yes Absolutely
1 No
|: 0 .
Which one do you like the most, circuits or computers?
0 I am more interested in computer rather than circuits.
1 I am more interested in ciruits not computers.
|: 0 .
Are you good at solving puzzles and problems?
0 Yaa, I am good at solving puzzles and problems.
1 No, I am not good at solving puzzles and problems.
|: 0 .
Are you anyhow interested in Algorithms and Data structures?
0 Yes Absolutely
1 No
|: 1 .
Do you anyhow get the free time to manage things?
0 Yes Absolutely
1 No
|: 1 .
Are you found the branch of information security, cryptography, Interesting?
0 Yes Absolutely
1 No
|: 1 .
As you are an M.tech Student, Recommended branch: Computer Science
It seems you have experience with computers and you know how to operate the software with ease.
You have the logical ability and are also interested in solving problems but do not like algorithms.
For Higher Studies, you can opt for 'APP DEVELOPMENT', as You have a profound interest in Android and logical thinking.
We are suggesting some career options with highest priority as "1", as per your skillset, I want the best thing to happen for you, Have a bright future :
#1.) GAME DEVELOPER
#2.) MOBILE APP DEVELOPER
#3.) SYSTEM ENGINEER
#4.) SOFTWARE ENGINEER
true.
?
```

4. Output for the AI ENGINEER :



```
File Edit Selection View Go Run Terminal Help
demo2.pl - 1. Getting started - Visual Studio Code

EXPLORER
original.java 9+ demo1.pl demo2.pl X conu ai prolog.java 9+
SWI-Prolog (AMD64, Multi-threaded, version 8.2.4)

File Edit Settings Run Debug Help
% c:/Users/udit kumar/Desktop/Demos/demo2.pl compiled 0.02 sec, 84 clauses
?- lets_begin .
Confuse which carrer to opt, which courses will be the best for you?
Do not worry we have made a perfect advisory system to resolve all your queries
NOTE:-Write the number of the option you are interested in, as shown in the options, followed by a dot "." to answer any question

> Do you like to think logically or in an imaginary way?
0 I Like to think logically more.
1 No, I like to think more in an imaginary way.
|: 0 .
> Which one do you like the most, circuits or computers?
0 I am more interested in computer rather than circuits.
1 I am more interested in ciruits not computers.
|: 0 .
> Are you good at solving puzzles and problems?
0 Yaa, I am good at solving puzzles and problems.
1 No, I am not good at solving puzzles and problems.
|: 0 .
> Do you have an interest in the number system?
0 Yes Absolutely
1 No
|: 1 .
> Does Discrete Mathematics attract you?
0 Yes Absolutely
1 No
|: 0 .
> Do you adaire mathematics?
0 Yes Absolutely
1 No
|: 1 .
> Are you anyhow interested in Algorithms and Data structures?
0 Yes Absolutely
1 No
|: 0 .
> Do you anyhow get the free time to manage things?
0 Yes Absolutely
1 No
|: 1 .
> Are you found the branch of information security, cryptography, Interesting?
0 Yes Absolutely
1 No
|: 1 .
> As you are an M.tech Student, Recommended branch: Computer Science
It seems you have experience with computers and you know how to operate the software with ease.
you are logical person. you are also good in discrete maths and problem solving. You have expeirience of computers. So, you can take Artificial Intelligence as the specialization for higher s
tudies.
We are suggesting some career options with highest priority as "1", as per your skillset, I want the best thing to happen for you, Have a bright future :
-1.) AI ENGINEER
-2.) DATA ENGINEER
-3.) DATA ANALYST
-4.) NLP ENGINEER
-5.) DATA RESEARCHER
-6.) SOFTWARE ENGINEER
-7.) QUALITY ASSURANCE ENGINEER
true.
```

5. When No conditions of any Branch Matches with the user Inputs

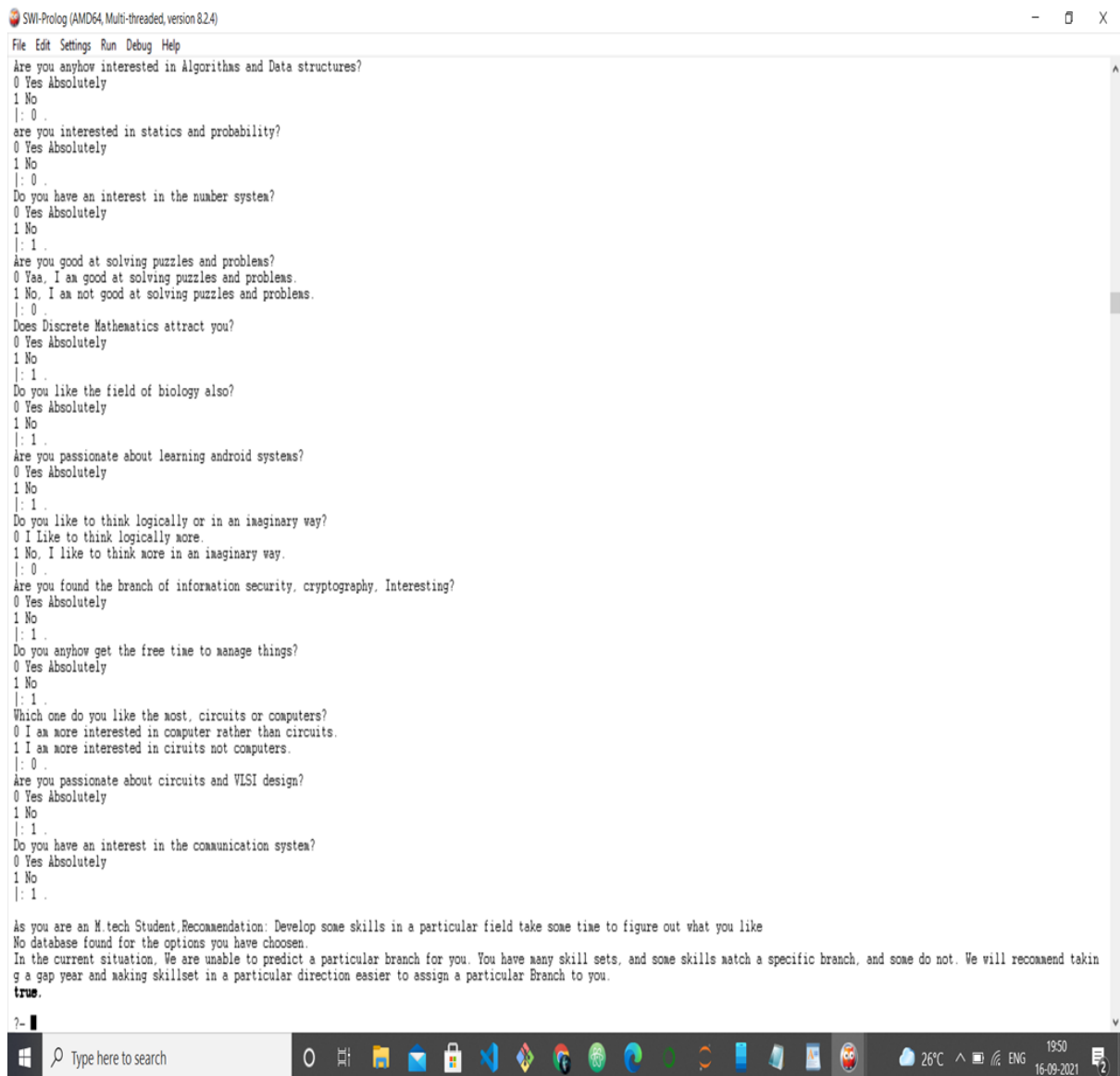
SWI-Prolog (AMD64, Multi-threaded, version 8.2.4)

File Edit Settings Run Debug Help

```
Warning: c:/users/udit kumar/desktop/demos/demo1.pl:21:
Warning: Singleton variables: [Field]
Warning: c:/users/udit kumar/desktop/demos/demo1.pl:447:
Warning: Singleton variables: [First]
% c:/Users/udit kumar/Desktop/Demos/demo1.pl compiled 0.02 sec, 82 clauses
?- lets_begin .
Confuse which carrer to opt, which courses will be the best for you?
Do not worry ve have made a perfect advisory system to resolve all your queries
NOTE:-Write the number of the option you are interested in, as shown in the options, followed by a dot "." to answer any question

Are you anyhow interested in Algorithms and Data structures?
0 Yes Absolutely
1 No
|: 0 .
are you interested in statics and probability?
0 Yes Absolutely
1 No
|: 0 .
Do you have an interest in the number system?
0 Yes Absolutely
1 No
|: 1 .
Are you good at solving puzzles and problems?
0 Yaa, I am good at solving puzzles and problems.
1 No, I am not good at solving puzzles and problems.
|: 0 .
Does Discrete Mathematics attract you?
0 Yes Absolutely
1 No
|: 1 .
Do you like the field of biology also?
0 Yes Absolutely
1 No
|: 1 .
Are you passionate about learning android systems?
0 Yes Absolutely
1 No
|: 1 .
Do you like to think logically or in an imaginary way?
0 I Like to think logically more.
1 No, I like to think more in an imaginary way.
|: 0 .
Are you found the branch of information security, cryptography, Interesting?
0 Yes Absolutely
1 No
|: 1 .
Do you anyhow get the free time to manage things?
0 Yes Absolutely
1 No
|: 1 .
Which one do you like the most, circuits or computers?
0 I am more interested in computer rather than circuits.
1 I am more interested in ciruits not computers.
|: 0 .
Are you passionate about circuits and VLSI design?
0 Yes Absolutely
1 No
|: 1 .
Do you have an interest in the communication system?
0 Yes Absolutely
```





Code :

```
/*
just compile the file and write

lets_begin .

*/

lets_begin :-
    how_to_use,
    make_answers,
    give_suitable_masters(Field).

how_to_use:-
```

```

    write('Confuse which carrier to opt, which courses will be the best
for you?'), nl,
    write('Do not worry we have made a perfect advisory system to
resolve all your queries'), nl,
    write('NOTE:-Write the number of the option you are interested in,
as shown in the options, followed by a dot "." to answer any
question'), nl, nl.

```

```

give_suitable_masters(Field) :-
    masters(Field), !.

```

```

:- dynamic(information_collected/2).

```

```

make_answers :-
    retract(information_collected(_, _)),
    fail.
make_answers.

```

```

characterstics(ml,UK):-
    loves_algo(yes),
    solving_problems(solving_problems),
    likes_thinking_logically,
    loves_info_security(no),
    likes_probability(yes),
    free_time(no),
    likes_computers_or_circuits(computers),
    loves_number_system(yes),
    like_maths(yes),
    likes_discrete_maths(no),
    UK='You have the logical ability and can solve problems.
For Higher Studies, you can opt the field of "Data Engineering", as
You have a profound interest in the algo, mathematics,
probabilities, and number system.'.

```

```

characterstics(ai,UK):-
    loves_algo(yes),
    likes_probability(yes),
    loves_number_system(no),
    solving_problems(solving_problems),
    likes_discrete_maths(yes),
    likes_computers_or_circuits(computers),
    loves_info_security(no),
    like_maths(no),
    likes_thinking_logically,
    free_time(no),

```


UK='You have the logical ability and can solve problems.
For Higher Studies, you can opt the field of "ARTIFICIAL
INTELLIGENCE", as You have a profound interest in the algo, discrete
mathematics,
probabilities.'

characterstics(appdevelopment,UK):-
likes_android(yes),
loves_algo(no),
likes_computers_or_circuits(computers),
loves_info_security(no),
solving_problems(solving_problems),
free_time(no),
likes_thinking_logically,

UK='You have the logical ability and are also interested in solving
problems but do not like algo.
For Higher Studies, you can opt for "APP DEVELOPMENT", as You have a
profound interest in Android and logical thinking.'

characterstics(vlsidesign,UK):-
vlsi_design(yes),
likes_circuits_design,
likes_computers_or_circuits(circuits),
likes_thinking_logically,
solving_problems(solving_problems),
UK='You have the logical ability and can solve problems.
For Higher Studies, you can opt the field of "VLSI DESIGN ENGINEER,"
as You have a profound interest in Circuit Design, Vlsi Design, and
Circuits.'

characterstics(computer_security,UK):-
loves_info_security(yes),
loves_algo(no),
likes_probability(yes),
likes_android(no),
likes_computers_or_circuits(computers),
solving_problems(solving_problems),
loves_number_system(yes),
likes_thinking_logically,
free_time(no),
like_maths(yes),

UK='You have the logical ability and can solve problems.
For Higher Studies, you can opt the field of "INFORMATION SECURITY,"
as You have a profound interest in Information security,
Probabilities, and Number systems.'

characterstics(cb,UK):-
biology(yes),
likes_imaginary_thinking,
like_maths(no),

```
loves_number_system(yes),
likes_computers_or_circuits(computers),
solving_problems(solving_problems),
```

```
UK='You have Imaginary Thinking and like to solve problems.
For Higher Studies, you can opt the field of "COMPUTATIONAL
BIOLOGY," as You have a profound interest in Biology, Number
systems, and solving real-world problems.'
```

```
characterstics(csp,UK):-
communication_system(yes),
likes_circuits_design,
likes_computers_or_circuits(circuits),
solving_problems(solving_problems),
vlsi_design(no),
```

```
UK='You can solve problems.
For Higher Studies, you can opt the field of "ELECTRONICS AND
COMMUNICATION ENGINEER," as You have a profound interest in Circuit
Design, Communication systems, and Circuits.'
```

```
characterstics(gap,UK):-
UK='No database found for the options you have choosen.',nl.
```

```
likes_circuits_design:-circuits(yes).
likes_thinking_logically:-likes_logic_nonlogic(logic).
likes_imaginary_thinking:-likes_logic_nonlogic(imaginary).
```

```
masters(computer_science):-
characterstics(ai,UK),
write('As you are an M.tech Student, Recommended branch: Computer
Science '),nl,
write('It seems you have experience with computers and you know how
to operate the software with ease. '),nl,
write(UK),nl,
write('We are suggesting some career options with highest priority
as 1, as per your skillset, I want the best thing to happen for you,
Have a bright future :'),nl,
write('#1.) AI ENGINEER'),nl,
write('#2.) DATA ENGINEER'),nl,
write('#3.) DATA ANALYST'),nl,
write('#4.) NLP ENGINEER'),nl,
write('#5.) DATA RESEARCHER'),nl,
write('#6.) SOFTWARE ENGINEER'),nl.
```

```
masters(computational_bio):-
characterstics(cb,UK),
write('As you are an M.tech Student, Recommended Branch:
Computational Biology'),nl,
write('It seems you have experience with Computers and also you
shows a great interest in Biology. '),nl,
```

```

write(UK),nl,
write('We are suggesting some career options with highest priority
as "1", as per your skillset, I want the best thing to happen for
you, Have a bright future :'),nl,
write('#1.) COMPUTATIONAL ENGINEER'),nl,
write('#2.) SOFTWARE ENGINEER'),nl,
write('#3.) SYSTEM ENGINEER'),nl.

```

```

masters(computer_science):-
characterstics(appdevelopment,UK),
write('As you are an M.tech Student, Recommended branch: Computer
Science '),nl,
write('It seems you have experience with computers and you know how
to operate the software with ease. '),nl,
write(UK),nl,
write('We are suggesting some career options with highest priority
as "1", as per your skillset, I want the best thing to happen for
you, Have a bright future :'),nl,
write('#1.) GAME DEVELOPER'),nl,
write('#2.) MOBILE APP DEVELOPER'),nl,
write('#3.) SYSTEM ENGINEER'),nl,
write('#4.) SOFTWARE ENGINEER'),nl.

```

```

masters(computer_science):-
characterstics(ml,UK),
write('As you are an M.tech Student, Recommended branch: Computer
Science '),nl,
write('It seems you have experience with computers and you know how
to operate the software with ease. '),nl,
write(UK),nl,
write('We are suggesting some career options with highest priority
as "1", as per your skillset, I want the best thing to happen for
you, Have a bright future :'),nl,
write('#1.) DATA SCIENTIST'),nl,
write('#2.) DATA RESEARCHER '),nl,
write('#3.) NLP ENGINEER'),nl,
write('#4.) SOFTWARE ENGINEER'),nl.

```

```

masters(electronics):-
characterstics(vlsidesign,UK),
vlsi_design(yes),
write('As you are an M.tech Student, Recommended Branch: Electronics
and Communication'),nl,
write('It seems you have experience with Circuits and Hardware
componenets. '),nl,
write(UK),nl,
write('We are suggesting some career options with highest priority
as "1", as per your skillset, I want the best thing to happen for
you, Have a bright future :'),nl,
write('#1.) VLSI DESIGN ENGINEER '),nl,
write('#2.) EMBEDDING ENGINEER'),nl,
write('#3.) VLSI FLOW ENGINEER'),nl,
write('#4.) SYSTEM ENGINEER'),nl.

```

```

masters(electronics):-
characterstics(csp,UK),
write('As you are an M.tech Student, Recommended Branch: Electronics
and Communication'),nl,
write('It seems you have experience with Circuits and Hardware
componenets. '),nl,
write(UK),nl,
write('We are suggesting some career options with highest priority
as "1", as per your skillset, I want the best thing to happen for
you, Have a bright future :'),nl,
write('#1.)COMMUNICATION ENGINEER '),nl,
write('#2.)EMBEDDING ENGINEER '),nl,
write('#3.) GDS ENGINEER'),nl,
write('#4.)RTL DESIGNER'),nl,
write('#5.) SYSTEM ENGINEER'),nl.

```

```

masters(computer_science):-
characterstics(computer_security,UK),
write('As you are an M.tech Student, Recommended branch: Computer
Science '),nl,
write('It seems you have experience with computers and you know how
to operate the software with ease. '),nl,
write(UK),nl,
write('We are suggesting some career options with highest priority
as "1", as per your skillset, I want the best thing to happen for
you, Have a bright future :'),nl,
write('#1.) COMPUTER SECURITY ENGINEER'),nl,
write('#2.)INFORMATION SECURITY ENGINEER'),nl,
write('#3.) DATA SECURITY ENGINEER'),nl,
write('#4.) CLOUD SUPPORT ENGINEER '),nl,
write('#5.) SYSTEM ENGINEER '),nl.

```

```

masters(gap_year):-
characterstics(gap,UK),
write('As you are an M.tech Student,Recommendation: Develop some
skills in a particular field take some time to figure out what you
like '),nl,
write(UK),nl,
write('In the current situation, We are unable to predict a
particular branch for you. You have many skill sets, and some skills
match a specific branch, and some do not. We will recommend taking a
gap year and making skillset in a particular direction easier to
assign a particular Branch to you. '),nl.

```

```

user_ans(yes) :-
    write('Yes Absolutely').

```

```

user_ans(imaginary):-

```

```

        write('No, I like to think more in an imaginary way.').

user_ans(logic):-
write('I Like to think logically more.').

user_ans(no_solving_problems) :-
    write('No, I am not good at solving puzzles and problems.').

user_ans(circuits):-
write('I am more interested in circuits not computers.').

user_ans(computers):-
write('I am more interested in computer rather than circuits.').

user_ans(no) :-
    write('No').

user_ans(solving_problems) :-
    write('Yaa, I am good at solving puzzles and problems.').

curious(loves_info_security):-
write('Are you found the branch of information security,
cryptography, Interesting?'),nl.

curious(circuits):-
write('Do you know about the circuits, and does their system make
you curious to learn them more?'),nl.

curious(solving_problems):-
write('Are you good at solving puzzles and problems?'),nl.

curious(likes_computers_or_circuits):-
write('Which one do you like the most, circuits or computers?'),nl.

curious(like_maths):-
write('Do you admire mathematics? '),nl.

curious(free_time):-
write('Do you anyhow get the free time to manage things?'),nl.

curious(likes_discrete_maths):-
write('Does Discrete Mathematics attract you? '),nl.

curious(likes_probability):-
write('are you interested in statics and likes probability?'),nl.

curious(vlsi_design):-
write('Are you passionate about circuits and VLSI design?'),nl.

curious(loves_number_system):-
write('Do you have an interest in the number system?'),nl.

curious(likes_android):-

```

```

write('Are you passionate about learning android systems?'),nl.

curious(communication_system):-
write('Do you have an interest in the communication system?'),nl.

curious(likes_logic_nonlogic):-
write('Do you like to think logically or in an imaginary way?'),nl.

curious(biology):-
write('Do you like the field of biology also?'),nl.

curious(likes_algo):-
write('Are you anyhow interested in Algos and Data structures?'),nl.

```

```

likes_android(Reply) :-
    information_collected(likes_android, Reply).
likes_android(Reply) :-
    \+ information_collected(likes_android, _),
    question(likes_android, Reply, [yes, no]).

```

```

free_time(Reply) :-
    information_collected(free_time, Reply).
free_time(Reply) :-
    \+ information_collected(free_time, _),
    question(free_time, Reply, [yes, no]).

```

```

circuits(Reply) :-
    information_collected(circuits, Reply).
circuits(Reply) :-
    \+ information_collected(circuits, _),
    question(circuits, Reply, [yes, no]).

```

```

likes_discrete_maths(Reply) :-
    information_collected(likes_discrete_maths, Reply).
likes_discrete_maths(Reply) :-
    \+ information_collected(likes_discrete_maths, _),
    question(likes_discrete_maths, Reply, [yes, no]).

```

```

solving_problems(Reply) :-
    information_collected(solving_problems, Reply).
solving_problems(Reply) :-
    \+ information_collected(solving_problems, _),
    question(solving_problems, Reply, [solving_problems,
no_solving_problems]).

```

```

likes_logic_nonlogic(Reply) :-
    information_collected(likes_logic_nonlogic, Reply).
likes_logic_nonlogic(Reply) :-

```

```

\+ information_collected(likes_logic_nonlogic, _),
question(likes_logic_nonlogic, Reply, [logic,imaginary])).

like_maths(Reply) :-
    information_collected(like_maths, Reply).
like_maths(Reply) :-
    \+ information_collected(like_maths, _),
    question(like_maths, Reply, [yes, no])).

likes_computers_or_circuits(Reply) :-
    information_collected(likes_computers_or_circuits, Reply).
likes_computers_or_circuits(Reply) :-
    \+ information_collected(likes_computers_or_circuits, _),
    question(likes_computers_or_circuits, Reply, [computers,
circuits])).

loves_number_system(Reply) :-
    information_collected(loves_number_system, Reply).
loves_number_system(Reply) :-
    \+ information_collected(loves_number_system, _),
    question(loves_number_system, Reply, [yes, no])).

likes_probability(Reply) :-
    information_collected(likes_probability, Reply).
likes_probability(Reply) :-
    \+ information_collected(likes_probability, _),
    question(likes_probability, Reply, [yes, no])).

loves_info_security(Reply) :-
    information_collected(loves_info_security, Reply).
loves_info_security(Reply) :-
    \+ information_collected(loves_info_security, _),
    question(loves_info_security, Reply, [yes, no])).

vlsi_design(Reply) :-
    information_collected(vlsi_design, Reply).
vlsi_design(Reply) :-
    \+ information_collected(vlsi_design, _),
    question(vlsi_design, Reply, [yes, no])).

loves_algo(Reply) :-
    information_collected(loves_algo, Reply).
loves_algo(Reply) :-
    \+ information_collected(loves_algo, _),
    question(loves_algo, Reply, [yes, no])).

communication_system(Reply) :-
    information_collected(communication_system, Reply).
communication_system(Reply) :-
    \+ information_collected(communication_system, _),
    question(communication_system, Reply, [yes, no])).

```

```

biology(Reply) :-
    information_collected(biology, Reply).
biology(Reply) :-
    \+ information_collected(biology, _),
    question(biology, Reply, [yes, no]).

```

```

possible_answers([], _).
possible_answers([Head|Tail], Index) :-
    write(Index), write(' '), user_ans(Head), nl,
    NewIndex is Index + 1,
    possible_answers(Tail, NewIndex).

```

```

back(0, [Head|_], Head).
back(Index, [Head|Tail], Response) :-
    Index > 0,
    NewIndex is Index - 1,
    back(NewIndex, Tail, Response).

```

```

question(Question, Answer, Choices) :-
    curious(Question),
    possible_answers(Choices, 0),
    read(Index),
    back(Index, Choices, Response),
    asserta(information_collected(Question, Response)),
    Response = Answer.

```