

AI - Assignment 1

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I have made an elective advisory system for MTech CSE students. Based on the stream selected by them they will be asked few questions.

Based on the answers from the user the program gives some output.

I have used conditional statements, recursion, lists etc.

Steps to run the program:

1. Load the file using consult or ['a1.pl'] from same directory.
2. Then type **run.** on the prompt.
3. You will be asked for a stream, of course, you are interested in Mtech.
4. You will be asked to press **y.** for which you are interested and hit enter otherwise enter **n.** .
5. Then answer the question with yes or no.
y. for yes and **n.** for no

When Opting for Artificial Intelligence:

```
[?- ['a1.pl']  
|  
true.  
  
[?- run.  
Hello, Please answer these questions  
Are you interested in Artificial Intelligence?  
|: y.  
Are you interested in Data Engineering?  
|: n.  
Are you interested in Information Security?  
|: n.  
Are you interested in Mobile Computing?  
|: n.  
Do you know python ? |: y.  
Do you have basic programming skills ? |: y.  
Have you done any Database Course ? |: y.  
Do you have advanced programming experience ? |: y.  
Have you done probability & stats ? |: y.  
Do you know Machine Learning ? |: y.  
  
Electives good for you are :  
Machine Learning  
Information Retrieval  
Data Mining  
Big Data in Healthcare  
Artificial Intelligence  
Deep Learning  
Advanced Machine Learning  
true .  
  
?-
```

When opting for Data Engineering:

```
?- run.  
Hello, Please answer these questions  
Are you interested in Artificial Intelligence?  
|: n.  
Are you interested in Data Engineering?  
|: y.  
Are you interested in Information Security?  
|: n.  
Are you interested in Mobile Computing?  
|: n.  
Do you know python ? |: y.  
Do you have basic programming skills ? |: y.  
Have you done any Database Course ? |: y.  
Do you have advanced programming experience ? |: y.  
Have you done probability & stats ? |: y.  
Do you know Machine Learning ? |: y.  
  
Electives good for you are :  
Machine Learning  
Information Retrieval  
Data Mining  
Collaborative Filtering  
Big Data in Healthcare  
Big Data Analytics  
true .  
  
?- █
```

When Opting for Information Security:

```
[?- run.  
Hello, Please answer these questions  
Are you interested in Artificial Intelligence?  
[: n.  
Are you interested in Data Engineering?  
[: n.  
Are you interested in Information Security?  
[: y.  
Are you interested in Mobile Computing?  
[: n.  
[Do you know Discreet Maths ? |: y.  
[Do you know Computer Networks ? |: y.  
[Do you know basic Cryptography ? |: y.  
  
Electives good for you are :  
Applied Cryptography  
Distributed System Security  
Network Security  
Secure Coding  
true .  
  
?- █
```

Are you interested in Artificial Intelligence? Do you know Machine Learning?

When Opting for Mobile Computing:

```
[?- run.  
Hello, Please answer these questions  
Are you interested in Artificial Intelligence?  
[: n.  
Are you interested in Data Engineering?  
[: n.  
Are you interested in Information Security?  
[: n.  
Are you interested in Mobile Computing?  
[: y.  
[Do you have basic programming skills ? ?|: y.  
[Do you know Computer Networks ?|: y.  
[Do you know Basic Electronics ?|: y.  
  
Electives good for you are :  
Mobile Computing  
Distributed System Security  
Embedded Systems  
Cellular Data Networks  
Network Security  
Ad Hoc Wireless Networks  
true .  
  
?- █
```

Codes:

```
1 |run:-
2   write('Hello, Please answer these questions'),nl,
3
4   retractall(recommend(_)),
5   retractall(ai(_)),
6   retractall(de(_)),
7   retractall(is(_)),
8   retractall(mc(_)),
9
10
11  write('Are you interested in Artificial Intelligence?'),nl,
12  read(AI),
13  assert(ai(AI)),
14
15  write('Are you interested in Data Engineering?'),nl,
16  read(DE),
17  assert(de(DE)),
18
19  write('Are you interested in Information Security?'),nl,
20  read(IS),
21  assert(is(IS)),
22
23  write('Are you interested in Mobile Computing?'),nl,
24  read(MC),
25  assert(mc(MC)),
26
27  advice(_),
28  preferences(List),nl,
29
30  (isempty(List)
31   ->write('Sorry cannot recommend you anything' ),nl
32   ;write('Electives good for you are :'),show(List)
33  ),
34  clear.
35
36  advice('Machine Learning') :- ml,fail.
37  advice('Information Retrieval') :- ir,fail.
38  advice('Data Mining') :- dm,fail.
39  advice('Mobile Computing') :- mc,fail.
40  advice('Collaborative Filtering') :- cf, fail.
41  advice('Big Data Mining in Healthcare') :- bdmh,fail.
42  advice('Artificial Intelligence') :- ai,fail.
43  advice('Deep learning') :- dl,fail.
44  advice('Applied Cryptography') :- ac,fail.
45  advice('Advanced Machine Learning') :- aml,fail.
46  advice('Big Data Analytics') :- bda,fail.
47  advice('Distributed Systems Security') :- dss,fail.
48  advice('Embedded Systems') :- es,fail.
49  advice('Cellular Data Networks') :- cdn,fail.
50  advice('Network Security') :- ns,fail.
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46 advice('Big Data Analytics') :- bda, fail.
47 advice('Distributed Systems Security') :- dss, fail.
48 advice('Embedded Systems') :- es, fail.
49 advice('Cellular Data Networks') :- cdn, fail.
50 advice('Network Security') :- ns, fail.
51 advice('Ad Hoc Wireless Networks') :- ahwn, fail.
52 advice('Secure Coding') :- sc, fail.
53 advice('Sorry, No Recommendation !').
54
55
56 preferences([Head|Tail]):- retract(recommend(Head)), preferences(Tail).
57 preferences([]).
58
59 show([Head|Tail]):-
60     format('~n ~w', [Head]), show(Tail).
61
62 show([]).
63
64 isempty([]).
65
66 ml :-
67     retract(ai(A)),
68     assert(ai(A)),
69     retract(de(D)),
70     assert(de(D)),
71     ((A == y ; D == y)
72      ->true
73      ;fail
74     ),
75     questioninterest('Do you know python ?'),
76     questioninterest('Do you have basic programming skills ?'),
77     assert(recommend('Machine Learning')).
78
79 ir :-
80     retract(ai(A)),
81     assert(ai(A)),
82     retract(de(D)),
83     assert(de(D)),
84     ((A == y ; D == y)
85      ->true
86      ;fail
87     ),
88     questioninterest('Do you know python ?'),
89     questioninterest('Do you have basic programming skills ?'),
90     questioninterest('Have you done any Database Course'),
91     questioninterest('Do you have advanced programming experience'),
92     assert(recommend('Information Retrieval')).
93
94 dm :-
95     retract(ai(A)),

```

```

94 dm :-
95     retract(ai(A)),
96     assert(ai(A)),
97     retract(de(D)),
98     assert(de(D)),
99     ((A == y ; D == y)
100      ->true
101      ;fail
102     ),
103     questioninterest('Do you know python ?'),
104     questioninterest('Do you have basic programming skills ?'),
105     questioninterest('Have you done probability & stats'),
106     assert(recommend('Data Mining')).
107
108
109 mc :-
110     retract(mc(M)),
111     assert(mc(M)),
112
113     (M == y
114      ->true
115      ;fail
116     ),
117     questioninterest('Do you have basic programming skills ?'),
118     assert(recommend('Mobile Computing')).
119
120 cf :-
121     retract(de(D)),
122     assert(de(D)),
123     ( D == y
124      ->true
125      ;fail
126     ),
127     questioninterest('Do you know python ?'),
128     questioninterest('Do you have basic programming skills ?'),
129     questioninterest('Do you know Machine Learning'),
130     assert(recommend('Collaborative Filtering')).
131
132 bdmh :-
133     retract(ai(A)),
134     assert(ai(A)),
135     retract(de(D)),
136     assert(de(D)),
137     ((A == y ; D == y)
138      ->true
139      ;fail
140     ),
141
142     questioninterest('Do you know Machine Learning'),
143     assert(recommend('Big Data in Healthcare')).

```

```

145 ai :-
146     retract(ai(A)),
147     assert(ai(A)),
148     (A == y
149         ->true
150         ;fail
151     ),
152
153     assert(recommend('Artificial Intelligence')).
154
155
156
157
158 dl :-
159     retract(ai(A)),
160     assert(ai(A)),
161     (A == y
162         ->true
163         ;fail
164     ),
165
166     questioninterest('Do you know Machine Learning'),
167     assert(recommend('Deep Learning')).
168
169
170 ac :-
171     retract(is(A)),
172     assert(is(A)),
173     (A == y
174         ->true
175         ;fail
176     ),
177     questioninterest('Do you know Discreet Maths'),
178     assert(recommend('Applied Cryptography')).
179
180 aml :-
181     retract(ai(A)),
182     assert(ai(A)),
183
184     (A == y
185         ->true
186         ;fail
187     ),
188
189     questioninterest('Do you know Machine Learning'),
190     assert(recommend('Advanced Machine Learning')).
191
192 bda :-
193     retract(de(D)),
194     assert(de(D)),

```

```

192 bda :-
193     retract(de(D)),
194     assert(de(D)),
195     ( D == y
196         ->true
197         ;fail
198     ),
199
200     questioninterest('Do you have basic programming skills ?'),
201     questioninterest('Have you done any Database Course'),
202     assert(recommend('Big Data Analytics')).
203
204 dss :-
205     retract(is(A)),
206     assert(is(A)),
207     retract(mc(D)),
208     assert(mc(D)),
209     ((A == y ; D == y)
210         ->true
211         ;fail
212     ),
213     questioninterest('Do you know Computer Networks'),
214     assert(recommend('Distributed System Security')).
215
216 es :-
217     retract(mc(D)),
218     assert(mc(D)),
219     (D == y
220         ->true
221         ;fail
222     ),
223     questioninterest('Do you know Basic Electronics'),
224     assert(recommend('Embedded Systems')).
225
226 cdn :-
227     retract(mc(D)),
228     assert(mc(D)),
229     ( D == y
230         ->true
231         ;fail
232     ),
233     questioninterest('Do you know Computer Networks'),
234     assert(recommend('Cellular Data Networks')).
235
236 ns :-
237     retract(is(A)),
238     assert(is(A)),
239     retract(mc(D)),
240     assert(mc(D)),
241     ((A == y ; D == y)

```



```

244         ),
245         questioninterest('Do you know Computer Networks'),
246         assert(recommend('Network Security')).
247
248 ahwn :-
249         retract(mc(D)),
250         assert(mc(D)),
251         (D == y
252         ->true
253         ;fail
254         ),
255         questioninterest('Do you know Computer Networks'),
256         assert(recommend('Ad Hoc Wireless Networks')).
257
258
259 sc :-
260         retract(is(A)),
261         assert(is(A)),
262
263         (A == y
264         ->true
265         ;fail
266         ),
267         questioninterest('Do you know basic Cryptography'),
268         assert(recommend('Secure Coding')).
269
270
271 questioninterest(In) :-
272     (yes(In)
273     ->true
274     ;(no(In)
275     ->fail
276     ;ask(In))
277     ).
278
279 ask(Que) :-
280     format('~w ?', [Que]),
281     read(Ans),
282     ( (Ans == yes ; Ans == y)
283     ->assert(yes(Que))
284     ;assert(no(Que)), fail
285     ).
286
287 :- dynamic yes/1,no/1.
288
289
290 clear :- retract(yes(_)),fail.
291 clear :- retract(no(_)),fail.
292 clear.
293

```