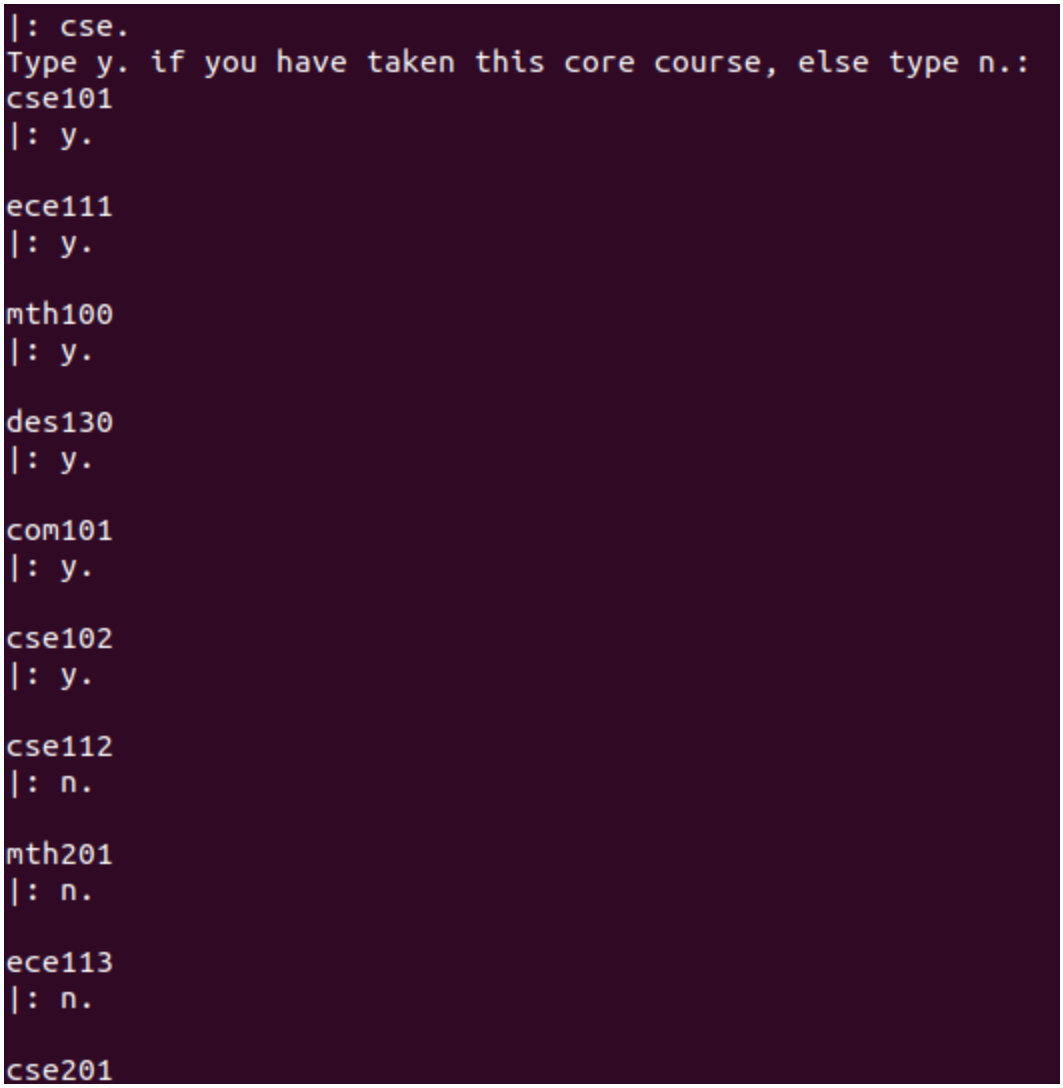
Electives Advisory System

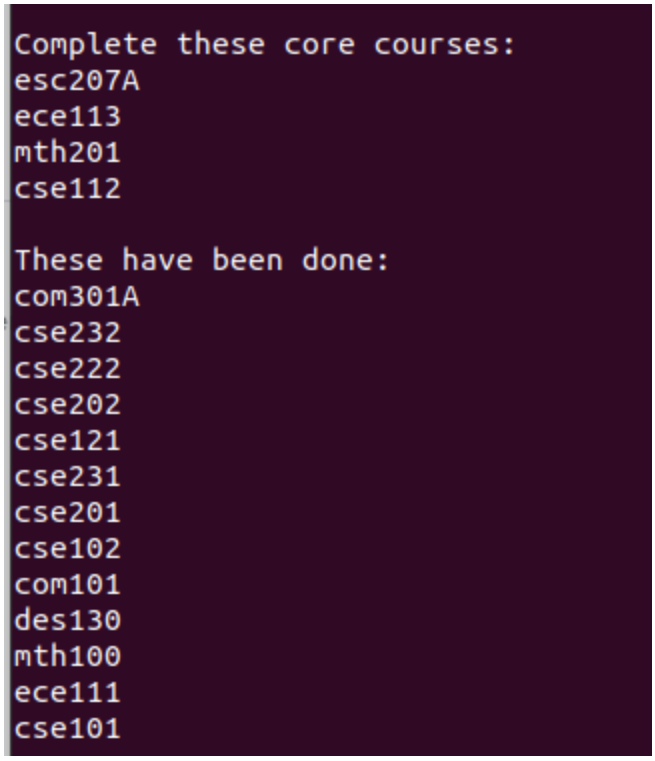
1. To start type get_rec() in prolog shell
2. Enter your current branch

```
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?- get_rec().
input branch(cse/csam/ece/csb/csd):
|: cse.
Type y. if you have taken this core course, else type n.:
cse101
```

3. You will then navigate through an interactive menu to fill all the core courses that you have completed for your branch.



4. At the end of this, you will get a list of core courses you still need to complete to get your degree.



5. After this, based on your core courses taken, a list of electives that you can take will be generated. You will here be asked to specify which ones out of these you have already taken in the form of course codes. Type fin to come out of this input loop. These will then again be incorporated into the db to give you an updated list of electives you can take, given all your inputs.

```
You are eligible for these electives based on core courses:
bio321:Algorithms in Bioinformatics
bio524:Biomedical Image Processing
bio361:Biophysics
bio545:Biostatistics
bio211:Cell Biology
bio534:Introduction to Computational Neuroscience
bio213:Introduction to Quantitative Biology
bio531:Introduction to Mathemaical Biology
bio542:Machine Learning for Biomedical Applications
bio532:Network Biology
cse320:Advanced Algorithms
cse631:Advanced Operating Systems
cse201:Advanced Programming
cse734:Advanced Topics in Mobile Computing
cse661:Affective Computing
cse222:Algorithm Design and Analysis
cse546:Applied Cryptography
cse529:Approximation Algorithms
cse643:Artificial Intelligence
cse557:Big Data Analytics
cse640:Collaborative Filtering
cse301:Compilers
cse511:Computer Architecture
cse333:Computer Graphics
cse232:Computer Networks
```

```
soc302:Urban Sociology
ent416:Creativity Innovation and Inventive Problem Solving
ent411:Entrepreneurial Communication
ent412:Entrepreneurial Khichadi
ent413:Entrepreneurial Finance
ent415:New Venture Planning
esc205:Environmental Sciences
Which of these have you done?
Enter course code(write fin to stop):
|: eco503.
Enter course code(write fin to stop):
|: psy302.
Enter course code(write fin to stop):
|: cse343.
Enter course code(write fin to stop):
|: cse565.
Enter course code(write fin to stop):
|: psy202.
Enter course code(write fin to stop):
|: cse301.
Enter course code(write fin to stop):
|: cse563.
Enter course code(write fin to stop):
|: fin.
```

```
List of all electives you are eligible for:
bio321:Algorithms in Bioinformatics
bio524:Biomedical Image Processing
bio361:Biophysics
bio545:Biostatistics
bio211:Cell Biology
bio534:Introduction to Computational Neuroscience
bio213:Introduction to Quantitative Biology
bio531:Introduction to Mathemaical Biology
bio542:Machine Learning for Biomedical Applications
bio532:Network Biology
cse320:Advanced Algorithms
cse562:Advanced Computer Vision
cse577:Advanced Internet of Things
cse631:Advanced Operating Systems
cse201:Advanced Programming
cse734:Advanced Topics in Mobile Computing
cse661:Affective Computing
cse222:Algorithm Design and Analysis
cse546:Applied Cryptography
```

6. To narrow down this output and get specific recommendations if you have a planned career trajectory, you can enter your desired career path from the list and you will get customized recommendations based on that.

```
Enter career path (the name):
1. data_science
2. cybersecurity
3. biotech
4. entrepreneurship
5. economist(MBA)
6. software_engineer
7. pure_mathematician
8. none
|: cybersecurity.
For your career path taking these courses would be beneficial:
Applied Cryptography
Foundations of Computer Security
Network Science
Network Security
Network Anonymity and Privacy
Theory of Modern Cryptography
```

7. Because IIIT Delhi allows you to minor in Economics/ Entrepreneurship etc. you can specify if you want course recommendations related to that. You will first get a list of core courses for the minor that you have still not completed, based on your input in step 3 and 5, and then you will be asked if you still want further recommendations for the electives you can take in that minor, if you type y., you get a list of the minor specific electives whose prerequisites you fulfill.

```
do you want a minor degree in Economics?
|: y.
You have not completed these mandatory courses:

eco311
eco301
eco221
do you want additional Economics electives you can take rn(y./n.)?
|: y.
eco314:Behavioroul Economics
eco503:Decision Theory
eco331:Foundations of Finance
eco201:Macroeconomics
eco223:Money and Banking

do you want a minor degree in Entrepreneurship(y./n.)?
|: y.
You have not completed these mandatory courses:

ent411
ent412
ent415
do you want additional Entrepreneurship electives you can take rn?
|: y.
ent413:Entrepreneurial Finance
ent416:Creativity Innovation and Inventive Problem Solving
```

Technical implementation details

The following concepts have been extensively used including Lists, Input/ Output, Recursion, Backtracking, Binding, cut, dynamic predicates leading to a pretty complex resultant program. Besides this, most of the courses and their prerequisites have been included in the knowledge base of the program, due to which the advice generated can be used for real time decision making.