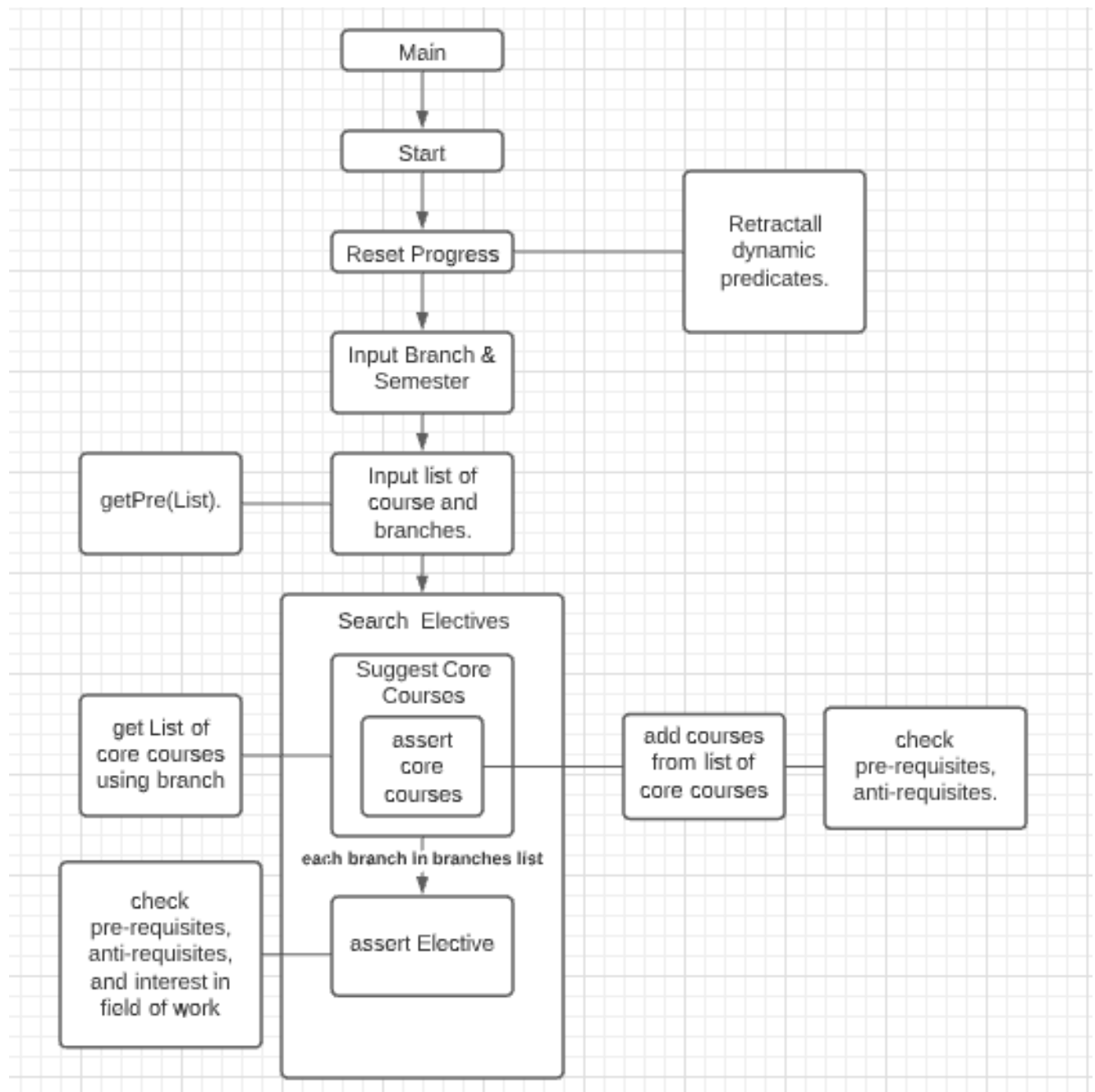


Assignment 1. Electives Prediction System

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Code Explanation.

Code Structure.



Code Explanation.

The code is commented on for easy understanding.

The structure is explained above.

Working and Assumptions

1. Input required:

Branches for students: cse, csai, mth (for csam), bio (for csb), des (for csd), ece. (csss is not available)

Semester: monsoon/ winter (summer not available)

Courses completed: mention the course code in all lowercase and no space. Type 'stop' to stop input.

Preference of course branches: Type cse, csai, mth, bio, des, ssh, ece, oth in the order of preference. (any or all). Type 'stop' to stop input.

When prompted answer for interest in the work field: Type "y" or "n".

2. Run the program by typing: main.

Enter the above-mentioned inputs. After the program is completed.

Type "suggestCourse(Variable)" on the prolog window.

Press ";" for all the predicted electives.

3. Dataset of courses. Course name, code, prerequisites, anti requisites, fields of work-related, optional requisites, semester type. The information is taken from the tech tree. The list of core courses is 2019 based taken from the college website. The list does not include all the courses from [the tech tree](#). The data may have some small mistakes (spelling, wrong numbers).

4. Output.

Output for main. "True" after the completion of the program.

Output for suggestCourse(Variable). predicted courses in order.

Order of suggested courses ->

1. Core courses that are applicable. (All the previous core courses in the list mentioned in code must be completed) (Semester type should be correct) (Some course definitions might be missing due to manual data input).
2. Courses according to the preferred branches. (Only the branches mentioned are included in the list).

Sample Outputs.

1.

```
[2] ?- suggestCourse(Electives).
Electives = "Biostatistics" ;
Electives = "Introduction to Computational Neuroscience" ;
Electives = "Introduction to Quantitative Biology".

[2] ?-
|   main.
Welcome to Elecives Advisory System
The advise is based on your career interests, branch preferances and courses done.

What is your branch? (cse/ csai/ des/ ece/ mth/ bio)
|: csai.
What is the ? (winter/ monsoon)
|: monsoon.
Input the course code of the courses done. (Type 'stop' to complete)
Enter: |: stop.
Input the preference order of branch of course. (cse/ csai/ des/ ece/ mth/ bio/ ssh/ oth)
Enter: |: stop.

true.

[2] ?- suggestCourse(Elective).
Elective = "Introduction to Programming" ;
Elective = "Digital Circuits" ;
Elective = "Linear Algebra" ;
Elective = "Prototyping Interactive Systems".
```

2.

```
% c:/Users/HP/Documents/Prolog/ElectivesAdvisory.pl compiled 0.03 sec, 0 clauses
[2] ?- main.
Welcome to Elecives Advisory System
The advise is based on your interests, branch and courses done.

What is your branch? (cse/ csai/ des/ ece/ mth/ bio)
|: cse.
What is the ? (winter/ monsoon)
|: monsoon.
Input the course code of the courses done. (Type 'stop' to complete)
Enter: |: stop.
Input the preference order of branch of course. (cse/ csai/ des/ ece/ mth/ bio/ oth)
Enter: |: bio.
Enter: |: csai.
Enter: |: oth.
Enter: |: ssh.
Enter: |: stop.
Are you interested in working in the field of Image Processing ? (y/ n)|: y.
Are you interested in working in the field of Biophysics ? (y/ n)|: y.
Are you interested in working in the field of Cells ? (y/ n)|: y.
Are you interested in working in the field of Machine Learning ? (y/ n)|: y.
Are you interested in working in the field of Networks ? (y/ n)|: y.
Are you interested in working in the field of Internet of Things ? (y/ n)|: y.
Are you interested in working in the field of Entrepreneurship ? (y/ n)|: y.
Are you interested in working in the field of Environment ? (y/ n)|: y.
Are you interested in working in the field of Economics ? (y/ n)|: n.
Are you interested in working in the field of Decision Theory ? (y/ n)|: n.
Are you interested in working in the field of Game Theory ? (y/ n)|: n.
Are you interested in working in the field of Philosophy ? (y/ n)|: y.
Are you interested in working in the field of Media ? (y/ n)|: y.
Are you interested in working in the field of Politics ? (y/ n)|: y.
Are you interested in working in the field of Theatre ? (y/ n)|: y.

true.

[2] ?- suggestCourse(Elective).
Elective = "Introduction to Programming" ;
Elective = "Digital Circuits" ;
Elective = "Linear Algebra" ;
Elective = "Prototyping Interactive Systems" ;
Elective = "Biomedical Image Processing" ;
Elective = "Biophysics" ;
Elective = "Cell Biology" ;
Elective = "ML for biomedical applications" ;
Elective = "Network Biology" ;
Elective = "Smart Sensing for Internet of Things" ;
Elective = "Entrepreneurial Communication" ;
Elective = "Environmental Sciences" ;
Elective = "Introduction to Philosophy" ;
Elective = "New Media and Politics" ;
Elective = "Theatre Appreciation".

...

```

3. Sample Output to check prerequisites

```
[2] ?- main.
Welcome to Elecives Advisory System
The advise is based on your career interests, branch preferances and courses done.

What is your branch? (cse/ csai/ des/ ece/ mth/ bio)
|: csai.
What is the ? (winter/ monsoon)
|: winter.
Input the course code of the courses done. (Type 'stop' to complete)
Enter: |: mth100.
Enter: |: cse101.
Enter: |: com101.
Enter: |: ecel111.
Enter: |: des130.
Enter: |: stop.
Input the preference order of branch of course. (cse/ csai/ des/ ece/ mth/ bio/ ssh/ oth)
Enter: |: cse.
Enter: |: csai.
Enter: |: ssh.
Enter: |: stop.
Are you interested in working in the field of Assembly Language ? (y/ n)|: n.
Are you interested in working in the field of Data Strcutures ? (y/ n)|: y.
Are you interested in working in the field of 3D Geometry ? (y/ n)|: n.
Are you interested in working in the field of Parallel Programming ? (y/ n)|: n.
Are you interested in working in the field of Quantum Computing ? (y/ n)|: y.
Are you interested in working in the field of Multimedia Computing ? (y/ n)|: y.
Are you interested in working in the field of Networks ? (y/ n)|: n.
Are you interested in working in the field of Priavcy ? (y/ n)|: n.
Are you interested in working in the field of Security ? (y/ n)|: y.
Are you interested in working in the field of Virtual Reality ? (y/ n)|: y.
Are you interested in working in the field of Computer Vision ? (y/ n)|: y.
Are you interested in working in the field of Neural Networks ? (y/ n)|: n.
Are you interested in working in the field of Logic ? (y/ n)|: y.
Are you interested in working in the field of Artificial Intelligence ? (y/ n)|n.
Are you interested in working in the field of Robotics ? (y/ n)|: y.
Are you interested in working in the field of Deep Learning ? (y/ n)|: y.
Are you interested in working in the field of Writing ? (y/ n)|: n.
Are you interested in working in the field of Ethics ? (y/ n)|: y.
Are you interested in working in the field of Psychology ? (y/ n)|: y.
Are you interested in working in the field of Finance ? (y/ n)|: n.
Are you interested in working in the field of Economics ? (y/ n)|: n.
Are you interested in working in the field of Sociology ? (y/ n)|: y.
```

true.

```
[2] ?- suggestCourse(Elective).
Elective = "Data Structures And Algorithms" ;
Elective = "Computer Organization" ;
Elective = "P&S" ;
Elective = "Introduction to Intelligent Systems" ;
Elective = "Introduction to Quantum Computing" ;
Elective = "Multimedia Computing and Applications" ;
Elective = "Virtual Reality" ;
Elective = "Computer Vision" ;
Elective = "Robotics" ;
Elective = "Computer Vision" ;
Elective = "Robotics" ;
Elective = "Thories of Deep Learning" ;
Elective = "Applied Ethics" ;
Elective = "Attention and Perception" ;
Elective = "Cognitive Psychology" ;
Elective = "Critical Thinking" ;
Elective = "Learning and Memory" ;
Elective = "Positive Psychology" ;
Elective = "Social Psychology" ;
Elective = "Sociological Theory" ;
Elective = "Urban Sociology".
```

4. Sample Output to check Anti-requisites.

```
[2] ?- main.
Welcome to Elecives Advisory System
The advise is based on your career interests, branch preferences and courses done.

What is your branch? (cse/ csai/ des/ ece/ mth/ bio)
|: cse.
What is the ? (winter/ monsoon)
|: winter.
Input the course code of the courses done. (Type 'stop' to complete)
Enter: |: mth100.
Enter: |: bio303.
Enter: |: stop.
Input the preference order of branch of course. (cse/ csai/ des/ ece/ mth/ bio/ ssh/ oth)
Enter: |: bio.
Enter: |: stop.
Are you interested in working in the field of Biostatistics ? (y/ n)|: y.
Are you interested in working in the field of Neuroscience ? (y/ n)|: y.
Are you interested in working in the field of Quanitative Biology ? (y/ n)|: y.

true.

[2] ?- suggestCourse(Electives).
Electives = "Biostatistics" ;
Electives = "Introduction to Computational Neuroscience" ;
Electives = "Introduction to Quantitative Biology".

?-
```

4.

```

% c:/Users/HP/Documents/Prolog/ElectivesAdvisory.pl compiled 0.05 sec, 0 clauses
[2] ?- main.
Welcome to Elecives Prediction System
The prediction is based on your career interests, branch preferances and courses done.

What is your branch? (cse/ csai/ des/ ece/ mth/ bio)
|: cse.
What is the ? (winter/ monsoon)
|: monsoon.
Input the course code of the courses done. (Type 'stop' to complete)
Enter: |: mth100.
Enter: |: cse101.
Enter: |: com101.
Enter: |: ecel11.
Enter: |: des130.
Enter: |: cse112.
Enter: |: mth201.
Enter: |: cse140.
Enter: |: cse201.
Enter: |: cse231.
Enter: |: stop.
Input the preference order of branch of course. (cse/ csai/ des/ ece/ mth/ bio/ ssh/ oth)
Enter: |: csai.
Enter: |: cse.
Enter: |: ssh.
Enter: |: des.
Enter: |: stop.
Are you interested in working in the field of Bayesian Approach ? (y/ n)|: n.
Are you interested in working in the field of Reinforcement Learning ? (y/ n)|: y.
Are you interested in working in the field of Internet of Things ? (y/ n)|: y.
Are you interested in working in the field of Recommender Systems ? (y/ n)|: n.
Are you interested in working in the field of Computer Architecture ? (y/ n)|: n.
Are you interested in working in the field of Computer Graphics ? (y/ n)|: y.
Are you interested in working in the field of Health Data ? (y/ n)|: n.
Are you interested in working in the field of Design Paradigms ? (y/ n)|: y.
Are you interested in working in the field of Computer Security ? (y/ n)|: n.
Are you interested in working in the field of Blockchains ? (y/ n)|: y.
Are you interested in working in the field of Cryptocurrency ? (y/ n)|: y.
Are you interested in working in the field of Digital Representation ? (y/ n)|: n.
Are you interested in working in the field of Programming ? (y/ n)|: y.
Are you interested in working in the field of Machine Learning ? (y/ n)|: y.
Are you interested in working in the field of Mobile Systems ? (y/ n)|: n.
Are you interested in working in the field of Android Programming ? (y/ n)|: n.
Are you interested in working in the field of Networks ? (y/ n)|: n.
Are you interested in working in the field of Privacy ? (y/ n)|: y.
Are you interested in working in the field of Security ? (y/ n)|: y.
Are you interested in working in the field of Parallel Processing ? (y/ n)|: n.
Are you interested in working in the field of Open Source ? (y/ n)|: n.
Are you interested in working in the field of Software Cycle ? (y/ n)|: n.
Are you interested in working in the field of Cryptography ? (y/ n)|: y.
Are you interested in working in the field of Artificial Intelligence ? (y/ n)|: y.
Are you interested in working in the field of Economics ? (y/ n)|: n.
Are you interested in working in the field of Decision Theory ? (y/ n)|: n.
Are you interested in working in the field of Game Theory ? (y/ n)|: y.
Are you interested in working in the field of Philosophy ? (y/ n)|: n.
Are you interested in working in the field of Media ? (y/ n)|: n.
Are you interested in working in the field of Philosophy ? (y/ n)|: n.
Are you interested in working in the field of Media ? (y/ n)|: n.
Are you interested in working in the field of Politics ? (y/ n)|: n.
Are you interested in working in the field of Theatre ? (y/ n)|: n.
Are you interested in working in the field of Interactive Systems ? (y/ n)|: y.
Are you interested in working in the field of Animation ? (y/ n)|: n.
Are you interested in working in the field of Wearables ? (y/ n)|: n.

true.

[2] ?- suggestCourse(Elective).
Elective = "Reinforcement Learning" ;
Elective = "Smart Sensing for Internet of Things" ;
Elective = "Computer Graphics" ;
Elective = "Designing Human Centered Systems" ;
Elective = "Introduction to Blockchain and cryptocurrency" ;
Elective = "Introduction to Programming" ;
Elective = "Machine Learning Techniques for Real Time Control" ;
Elective = "Security Engineering" ;
Elective = "Theory of Modern cryptography" ;
Elective = "Topics in SE: AI in SE" ;
Elective = "Game Theory" ;
Elective = "Design of Interactive Systems" ;

```


5.

```
% c:\Users\HP\Documents\Prolog\ElectivesAdvisory.pl compiled 0.02 sec, 0 clauses
[2] ?- main.
Welcome to Elecives Prediction System
The prediction is based on your career interests, branch preferances and courses done.

What is your branch? (cse/ csai/ des/ ece/ mth/ bio)
|: cse.
What is the ? (winter/ monsoon)
|: monsoon.
Input the course code of the courses done. (Type 'stop' to complete)
Enter: |: des130.
Enter: |: stop.
Input the preference order of branch of course. (cse/ csai/ des/ ece/ mth/ bio/ ssh/ oth)
Enter: |: des.
Enter: |: stop.
Are you interested in working in the field of Interactive Systems ? (y/ n)|: y.
Are you interested in working in the field of Animation ? (y/ n)|: y.
Are you interested in working in the field of Wearables ? (y/ n)|: y.

true.

[2] ?- suggestCourse(Elective).
Elective = "Introduction to Programming" ;
Elective = "Digital Circuits" ;
Elective = "Linear Algebra" ;
Elective = "Design of Interactive Systems" ;
Elective = "Introduction to Animation and Graphics" ;
Elective = "WARDI".
-- -- --
```