

This is a mock-up of the User Interface for the Grade Prediction Tool, by Ethan Myers.

All text bubbles like these are comments to help you, the user, understand what I intended for the system. This is to replace me explaining how it works in person.

Grade Predictor Tool

By Student Data Mining Group

Student Data

Browse...

Submit File

The first screen will have a file import. This is for the CS course history for the students in the study. This data will not be stored in the database since it will have Personally Identifiable Information, and therefore must be imported every time the tool is run.

Click "Submit File" to move to the next screen.

Grade Predictor Tool

By Student Data Mining Group

PeopleSoft ID

Current Term (PeopleSoft term convention i.e. 2201)

| | |
|-----------------------------|---|
| Select prediction method: | ▼ |
| Database Prediction | → |
| Machine Learning Prediction | → |

After importing the course data, you will then enter the target student's PeopleSoft ID, the current term, and select a prediction method.

Submit

In the actual tool you will click the 'submit' button to move on, but for now click "Database Prediction" or "Machine Learning Prediction" to go to their respective pages.

Grade Predictor Tool

By Student Data Mining Group

PeopleSoft ID

5555555

Current Term (PeopleSoft term convention i.e. 2201)

2211

First, how far into the future you want to look, by number of semesters. 0 is the current semester

Database Prediction

Database Prediction
Machine Learning Prediction

After selecting "Database Prediction", you will then enter values for the data you want to receive.

Number of semesters to look into the future (default 0)

0

Number of semesters leeway (default 0)

0

The next two options are for the accuracy of the database prediction model: How far apart can they have taken the classes, by number of semesters? How far apart can their grades have been, by percentage (0-100)?

Grade leeway by percent (default 0)

0

All students

Only students that completed all mandatory CS courses

All CS courses.

Only mandatory CS courses.

Then, two more options: Should the system consider all students in the database, or only those students that have taken all 8 CS mandatory courses?

Submit

Clear

Click "Submit" to move to the results, or "Clear" to, well, clear the fields.

Also, should the system take into account all CS courses that the students have taken, or only the 8 mandatory ones?

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2211

First, how far into the future you want to look, by number of semesters.
0 is the current semester

Machine Learning Prediction ▼

Database Prediction →

Machine Learning Prediction

After selecting "Machine Learning Prediction", you will then enter values for the data you want to receive.

Number of semesters to look into the future (default 0)

0



All students ▼

Only students that completed all mandatory CS courses

Then, one more option:
Should the system consider all students in the database, or only those students that have taken all 8 CS mandatory courses?

Submit →

Clear →

Click "Submit" to move to the results, or "Clear" to, well, clear the fields.

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Database Prediction

Database Prediction

Machine Learning Prediction

Number of semesters to look into the future (default 0)

2

Number of semesters leeway (default 0)

1

Grade leeway by percent (default 0)

20

All students

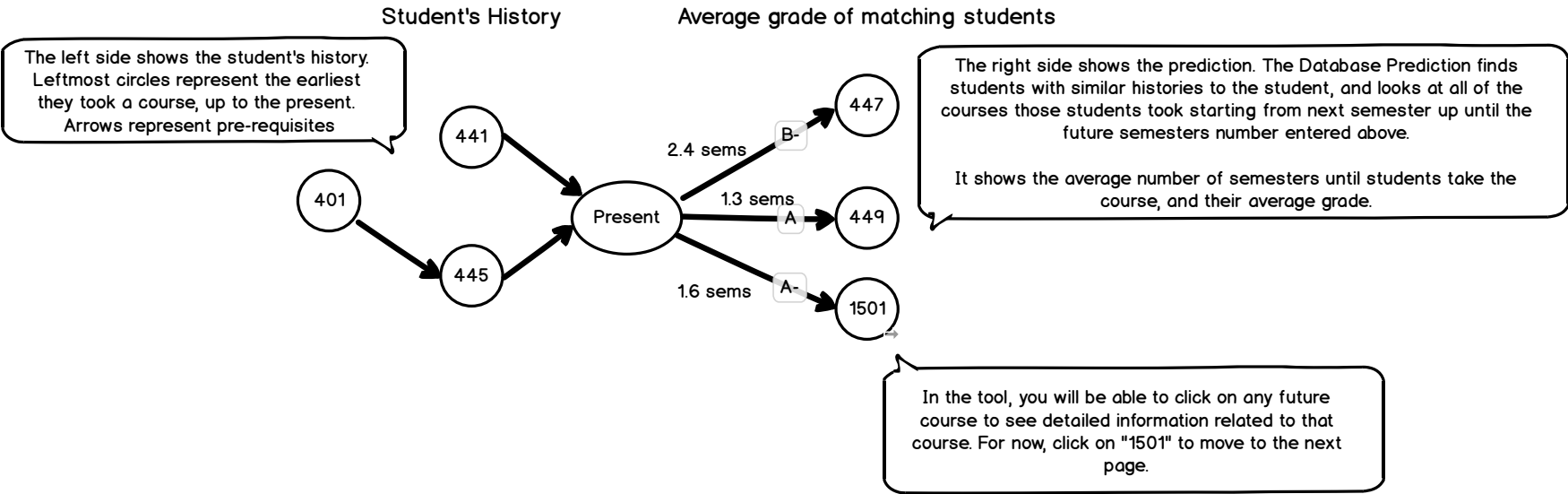
Only students that completed all mandatory CS courses

All CS courses.

Only mandatory CS courses.

Submit

Clear



Grade Predictor Tool

By Student Data Mining Group

PeopleSoft ID

Current Term (PeopleSoft term convention i.e. 2201)

Machine Learning Prediction
Database Prediction
Machine Learning Prediction

Number of semesters to look into the future (default 0)

2

All students
Only students that completed all mandatory CS courses

Submit

Clear

Select Cluster

Cluster 2
Cluster 1
Cluster 2
etc.

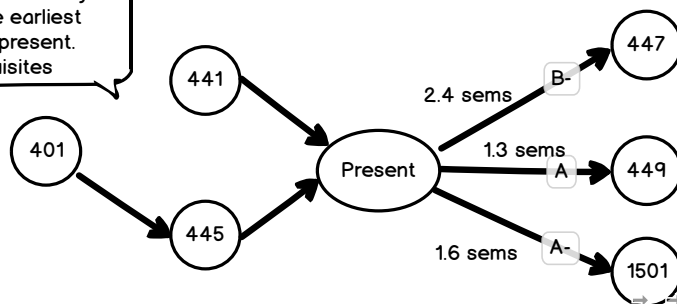
Closest match: Cluster 2

The software will calculate which cluster is the closest match to the target student's history. It will then display information based on that cluster.

However, you will be able to manually select a different cluster, in order to see what those clusters look like in comparison.

Student's History

Average grade of matching students



The right side shows the prediction. The Machine Learning determines which cluster the student is closest to, and shows the average cluster info.

It shows the average number of semesters until students take the course, and their average grade.

In the tool, you will be able to click on any future course to see detailed information related to that course. For now, click on "1501" to move to the next page.

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2211

Database Prediction

Database Prediction

Machine Learning Prediction

Number of semesters to look into the future (default 0)

2

Number of semesters leeway (default 0)

1

Grade leeway by percent (default 0)

20

All students

Only students that completed all mandatory CS courses

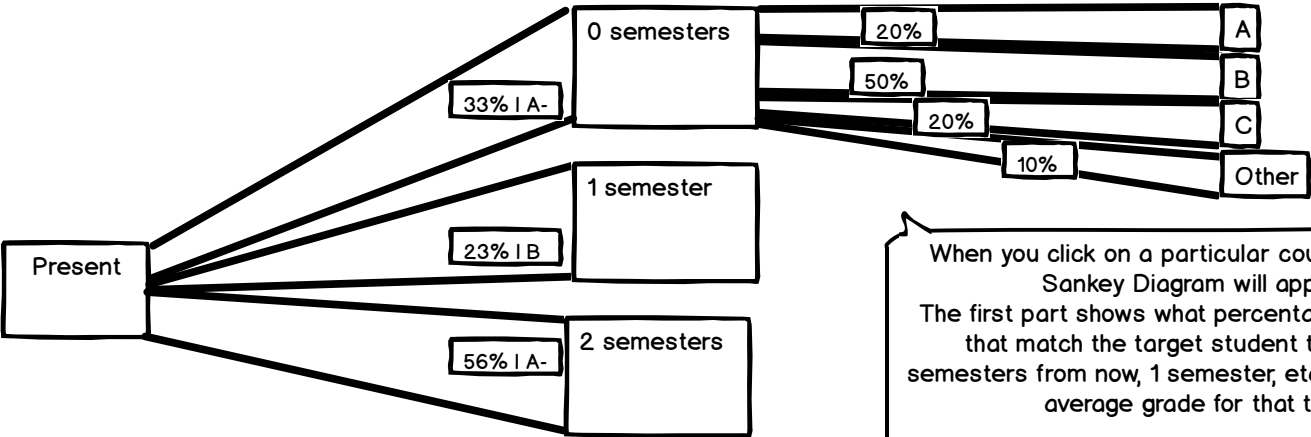
All CS courses.

Only mandatory CS courses.

Submit

Clear

1501 Results



When you click on a particular course, a 2-layer Sankey Diagram will appear.

The first part shows what percentage of students that match the target student took 1501 0 semesters from now, 1 semester, etc. along with the average grade for that time.

The second part shows what percentage of students that match the target student and took it that many semesters from now got which grade.

Final layout TBD.

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PeopleSoft ID

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Current Term (PeopleSoft term convention i.e. 2201)

2211

Machine Learning Prediction

Database Prediction

Machine Learning Prediction

Number of semesters to look into the future (default 0)

2

All students

Only students that completed all mandatory CS courses

Submit

Clear

Select Cluster

Closest match: Cluster 2

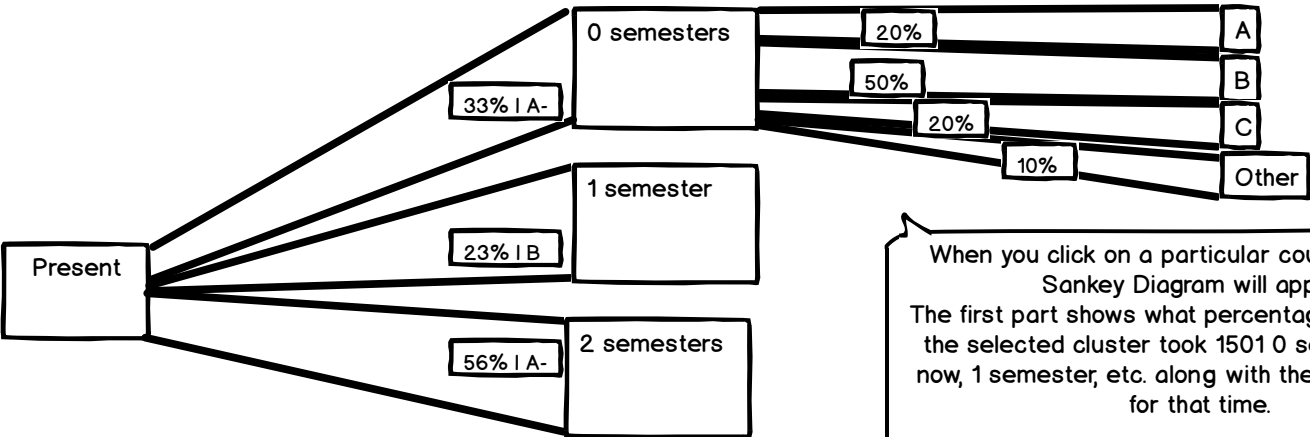
Cluster 2

Cluster 1

Cluster 2

etc.

1501 Results



When you click on a particular course, a 2-layer Sankey Diagram will appear.

The first part shows what percentage of students in the selected cluster took 1501 0 semesters from now, 1 semester, etc. along with the average grade for that time.

The second part shows what percentage of students who are in that cluster and took it that many semesters from now got which grade.

Final layout TBD.