CSC594 Mini Personality Content Theory

Version 3

Gianna Rasmussen

# Description

Using the Myers-Briggs Personality Model (MBP), an AI can create the optimal course schedule for a college student. The user, a student, will indicate their MBP type using personality scales, and indicate what fields the user desires to fulfill with their schedule. With a minimum of one field required, and the maximum is to be defined by the University. Based on these inputs the AI will search the possible courses that user can take in each field and rank the courses based on how much they align with the personality type indicated by the user. To do so, the AI will look through the course tags, and then the individual class tags.

The course tags are the collection of tags used in the classes offered within the course, and are used to find which courses have the potential to have a class that matches with the personality type of the user. Each tag will be associated with one of the personality type facets (introverted, extraverted, sensing, feeling, ect.), the AI will add the tags together to make the personality type scores.

Once the AI has a list of possible courses, it will look through each class offered in the courses and add up the tag values that will indicate how strongly the course aligns with different personality types. The AI will form a schedule around what classes will create the highest personality type score, taking into account the times of each of the classes, and output the schedule to the user.

# Tags



(Visual A - Representation of the tag system)

Tag Meanings:

**Interactive**: The students are expected to interact with others or do some sort of work in class as part of the course, this includes in-class discussions, group work, projects, being expected to answer questions in class, or presenting information. *Sensing Tag*

**Non-Interactive**: Though participation in-class may be encouraged, there are no requirements to interact with the professor or others. Courses that are non-interactive may be lecture heavy. *Introversion Tag*

**Grounded**: The course is heavily based in reality and will likely focus on real-world events and proven-theories and ideas. Focuses less on the “what-ifs” and fantasy. *Sensing Tag*

**Creative**: Students will be expected to think creatively in order to succeed in the class. The students may have to make things, come up with original ideas, or think outside the box. It may also display that the Professor values creativity in assignments/projects. *Intuition Tag*

**Objective**: Personality will not factor into the course experience outside of how the class is taught. Different beliefs and ideas should not factor into the assignments or overall class experience. *Thinking Tag*

**Impressionistic**: Indicates that the class deals with subjective concepts. Professor bias is likely embedded into class simply due to the nature of the course as it focuses on things that are individualized such as humor. *Feeling Tag*

**Fact-Based**: Does the class teach things with a right or wrong answer? Assignments and quizzes are unlikely to have a variety of answers to a single question. *Thinking Tag*

**Abstract**: There is no strictly right or wrong answer. The class may focus on a student using evidence to prove their answer is valid or explain an interpretation/belief. *Intuition Tag*

**Essays**: The students will be expected to write essays for this class. *Judging Tag*

**Lecture Heavy**: The Professor will spend a majority of the class time lecturing. *Introversion Tag*

**Quizzes**: Students will have to take multiple quizzes as part of the course. *Judging Tag*

**Projects**: Students will have to do projects for this course. *Sensing Tag*

**Discussions**: Students will have to participate in discussions. *Perceiving Tag*

**Group Work**: Students will have to work in groups. *Extraversion Tag*

**Problem-Solving**: The class focuses on finding answers or solutions. *Judging Tag*

**Situational Understanding**: The class focuses on the student’s ability to understand a concept or event using knowledge taught in the class. Students will likely have to be able to use what they have learned to analyze, draw conclusions, and/or make inferences. *Perceiving Tag*

**Presentations**: Students will be expected to create a presentation. *Perceiving Tag*

**In-Person**: The class meets physically in-person. *Extraversion Tag*

**Online**: This is an online course and meets online (or not at all). *Introversion Tag*

Tag Trait Reference Table:

| Extraversion (E) | Introversion (I) | Sensing (S) | Intuition (N) |
| --- | --- | --- | --- |
| Group Work  In-Person | Non-Interactive  Online  Lecture-Heavy | Grounded  Projects  Interactive | Abstract  Creative |

| Thinking (T) | Feeling (F) | Judging (J) | Perceiving (P) |
| --- | --- | --- | --- |
| Fact-Based  Objective | Impressionistic | Problem-Solving  Essays  Quizzes | Situational-Understanding  Discussions  Presentations |

What tags coincide with what facets of the Myers-Briggs Personality Types is related to which personality facet would react most to the particular class element.

Extraverts would likely prefer in-person classes as it gives students more ability to socialize amongst each other. Group work gives students the chance to socialize with each other while doing class work, something that would appeal to extraverts the most.

Introverts may prefer online learning as it puts more distance between themself and their classmates, potentially making the class less exhausting. Non-Interactive classes put less pressure on the student to interact with others in the class, and here the term acts as an umbrella tag for: very little expectation to engage with the class, which is why lecture-heavy also falls under the introvert tag. The more the student can choose how much they engage with the class, the less draining and better the class will be for introverts.

The sensing tags focus on how much the student is able to engage with the course through projects and being interactive. Both tell the AI that this class will be hands-on and engaging. The grounded tag tells the AI the class will allow the student to use their preference to reality and focusing on the world around them in class.

Those that prefer to use their intuition over sensing would enjoy engaging with more abstract and creative classes, where students can use what they know about the world to engage with the content of the course.

The tags that lend themselves to thinkers, Fact-Based and Objective, help the student engage with and understand the material best. Thinkers can come to their own conclusions without getting irritated by clear Professor bias, and will be more likely to pick up on the subject quickly.

Very few classes can lend themselves to those who prefer to make decisions based on feelings. Impressionistic is the only tag in this category due to the nature of courses where feelings are heavily involved being incredibly subjective.

The Judging and Perceiving tags are based on what will likely come more easily to those that prefer one or the other. For those that lean towards the judging side, problem-solving may come easier due to the structured nature of how one can break down a problem to find an answer or come up with a solution, which is also why the quizzes tag is also included in this tag set. Essays require structure and planning, something that those who lean towards judging are good at. Meanwhile situational-understanding, discussions, and presentations all require the ability to analyze what is happening in the moment. A student who leans towards the perceiving side may use what is happening around them in a discussion to contribute.

The AI will keep an up-to-date record of all the courses and class scores, with each tag counting as a point towards the categories indicated by the chart above. If a course has a class added, the system will automatically update the AI’s information so that each time a student uses the AI it will not have to re-calculate the scores each time.

The University Professors have to tag their own courses with these options. Some tags cannot be selected together as they are contradictions. Online and In-Person cannot both be tagged for a single class. Non-Interactive and Interactive, Group Work, and Discussions cannot be chosen together as well.

## How the AI Could Generate the Scores

### Course Scores:



E: 2

I: 0

S: 2

N: 2

T: 0

F: 1

J: 1  
P: 3

(Visual A.1.0)

### Class Scores:



E: 2

I: 0

S: 2

N: 2

T: 0

F: 1

J: 0  
P: 2

(Visual A.1.1)



E: 1

I: 0

S: 2

N: 2

T: 0

F: 1

J: 1

P: 3

(Visual A.1.2)

The AI would save these values for later reference, as well as the time the course takes place, which is not shown in the visuals.

# Personality Scales



(B. A visual representation of how the scales might look)

The personality scales will allow the user to indicate Myers-Briggs Personality type they are, and how much of each part of their type they are. This information will help the AI with priority. The system will not allow the user to set any of the scale values to 0 and all the values have to be at different percentages, even if it is only by one percent.

The AI will take these scores and note if any of them are within 20% of 0 and make secondary up to quinary personality types for the user, stored away for use in prioritization cases. In the case of Visual B, the Thinking-Feeling and Judging-Perceiving scales are. The AI would check which is closer to 0 to make the secondary MBPT. Visual B’s user would have a secondary MBPT of ESTP, and a tertiary type of ESFJ. The use of these will be explained in the prioritization section.

# Example Set



E: 0, I: 1, S: 2, N: 2,

T: 0, F: 1, J: 2, P: 2

E: 1, I: 1, S: 2, N: 1,

T: 1, F: 1, J: 2, P: 2

E: 1, I: 2, S: 2, N: 2,

T: 1, F: 1, J: 2, P: 2

(Visual C)

Say the user from Visual B wants to take one course in the Philosophy field and one course in the Arts and Literature field. The user is an ESFP, so the AI will therefore prioritize those scores.

If the AI looks at Sketch Comedy from Visual A as a possible course the user could take, it would add up the E,S,F, and P values of the course (found in Visual A.1.0). The user-course compatibility score is 8. Any course with a score higher than 8 would be considered a better fit for the user, and any score below would be considered a worse fit.

There will be a ranked list for each field the user requests. The AI will look at the classes for the course(s) with the highest score and make a new list of the best possible classes.

If Sketch Comedy from Visual A had the highest score, the AI would compare class scores by adding up the E, S, F, and P values (found in Visual A.1.1 and Visual A.1.2). The score for Section 207 is 8 (found in Visual A.1.1), and the score for Section 260 is 7.

Next the AI will look at Philosophical Inquiry (from Visual C). Section 301 has a 5, and section 204 has a 6.

The AI will make sure the times of ACT-209-207 and Hon-105-204 do not conflict, in this case we will say they do not, and will output the two classes to the user.

# Priority

## Class List Priority Example



(Visual D)

Let’s do the same situation, but using the student from Visual D who will be referred to as Student D, is an ISTP.

The class scores for Sketch comedy (found in Visual A.1.1 and Visual A.1.2) are both 2. If they are at the top of the list the AI will have to prioritize one over the other.

The AI will first check to see if it noted the user having a secondary MBPT.

In Student D’s case, the extraversion-introversion scale is within 20% of 0, so the secondary typing of Student D is ESTP. This will result in Section 207 (from Visual A) to be placed ahead of Section 260 in the list.

If these scores are the same for the secondary, the AI would go through to see if there is a tertiary MBPT, and so on until there is a difference in scores or there are no other user MBP types left to check against.

At this point the AI will look for any difference in scores and see how they line up against the user’s facet score. The class with the higher score is chosen if the user identifies with the trait, the class with the lower score if the user does not.

In the case that the scores are exactly the same, the AI will put the first course in the front, deciding that there is no difference between how satisfied the user will be with them.

## Time Conflict Priority Example

Once the AI has completed the lists, which will be lists of pointers for each class, it will begin to look at the top classes in each list and compare them.



(Visual E - Class Lists example.)

The AI looks at the first class in each of the class lists.

The AI will look at the pointers and compare class times.



(Visual E.1)

If none of the times conflict, the AI will output a schedule with the top classes.

Visual E.1 displays that Aclass and Bclass do have time conflicts. The AI will look at the Primary MBPT score, represented by Ptype in Visual E.1.

If one of the values is greater, the AI will choose to look to replace the class with the lover score.

If they have the same score, and the user has secondary, tertiary, or other lesser MBPTs, the AI will compare those scores in the same way.

In Visual E.1’s case, the scores for all are exactly the same.

When that happens the AI will look at all conflicting lists.



The AI will try the second class listed on list one with the first classes on the other lists.



The AI will note there is no time conflict and that this is a possible schedule.



The AI will go back to the list and try a schedule with the second class on the conflicting list.



If there is a time conflict, it will not be considered a viable option. If not, it will compare scores.

While the Primary personality types are evenly scored, the Eclass schedule has a higher point value for the secondary type making it the more favorable schedule.

# Concluding Thoughts

The application of the Myers-Briggs Type Indicator facets to a schedule optimizing AI could help college students discover classes they may otherwise have overlooked. Some colleges already have a tool that will create a schedule for a student, implementing a Myers-Briggs Personality Model style schedule creator would be an extension of those programs.