MVP for Group 16

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You are allowed to use bullet points!

What problem is your project trying to solve?
(What audience is it for? How will your project solve the issue?)

- The audience is for students or just anyone who would like to try simulating their college life through the game.
- The project is designed to show a lot of results in life are by random despite the hard work you put in, hence the life simulator aspect of the game
- How to make the topic of campus life basically realistic while being interesting and engaging.

What features make up your MVP (Minimum Viable Product)?
(What features do you hope to accomplish by the end of the semester?)

- A game that is designed to simulate school life, studying, socializing, and eventually graduating. To add more fun into the game we add the mechanic of competing with the professor through mini-games, a way to "fix things" when your grade is not as good as you want it to be.

- Different stats of the player will lead to different outcome for next day activities (or also lead to different game ends)

- You will make different choices, arrange how you spend your time, and all of your choices will lead to different endings of the game.

- A map of the campus with buildings that have different features.
    - a dorm where you can engage in activities such as studying or resting.
    - a library
    - classrooms
    - Club rooms/recreational rooms
    - a dining hall
    - Socializing with friends
    - Sports/gym

- The map will be made in 2D, or pseudo 3D
- Different drawings will be made to represent the buildings and placed onto the map as interactive icons.
- Players will be traveling from place to place to engage in different activities through pulling up the map and clicking on different locations.
- Player stats:
    - Have stamina bars:
        - physical health and energy (exercise, food, sleep)
        - stress levels
        - popularity (from friends)
        - knowledge (such as from studying)
    - Stats that are not shown on stamina bars:
        - Resume
        - Test grades and GPA (used for final evaluation and the ending)
        - Etc.
    - Possible activities that would influence the player stats:
        - Sleep
            - More rest = better energy for fights
            - Less time = higher chance of doing worst on exams
        - Eat
            - More energy = better energy for fights
            - Less time = higher chance of doing worst on exams
        - Study
            - Higher chance of doing better on exams based on how long
            - Less energy to fight in case you still do bad
        - Socialize with friends
            - More energy
            - Worst grades
        - club activities
            - Resume boost
            - Less time to study for exam

- Player Problems and Chances
    - Study a lot and still do bad (chances increase as you move up in course level)
        - Options: accept grade or fight professor (if lose fight you retake course)
    - To earn a good grade, you can either study very hard or after the test go fight with the professor to earn yourself a better grade
        - Three kinds of grade: fail, pass, excellent
        - In order to not retake the course, you have to get higher than fail.
        - Through fighting, you can either boost your grade from fail to pass, or pass to excellent
        - Different grades count differently to your overall GPA

- Not sleep to study: could get sick (lowers health and energy)
- Choose to eat (dining hall food poisoning??) (chances increase as you eat more)
    - Options: recover while not being able to study or fight cafeteria worker (if you lose the time it takes you to recover is longer)

- **Possible Fighting scenarios (MiniGames) ** don't worry about achieving every single one of these**
    - Simple shooting (Luyao Wang: Shooting game - Physics/ Chemistry, Memory game)
    - ~~Minigames (ex. hangman , pong, memory game, clicker game)~~
    - Different professors and subjects should engage in different fighting scenes
        - Mainly 3 categories for now.
    - Shooting games for STEM subjects
    - Mini Games for Humanities subjects（Ruixi zhang）
    - Platform jumping games for Business subjects (Yuxiang Li)

- Graphic/art design
    - Opening cutscene
    - map
    - buildings
    - Main Character
    - professors
    - friends
    - cutscenes for activities that the main character can engage in
        - Traveling between buildings
        - Enter fight with professor
    - ending cutscene
    - these should be designed in 2D or pseudo 3D
    - Most animation should be focused on the fighting scene and the other parts can be more static

What are some additional features outside the MVP?
(A list of features that would be nice to add after finishing the MVP.)

- Make the life choices also 3D such as moving around on campus
- Add even more possible life features such as research positions, pursuing a minor, personal issues, etc
- Make the fighting portions more realistic and complex, such as a shooting game etc
- Precisely set values, balanced.
- More possible branches of life choices such as being able to select any major and choosing electives
- More realistic options such as being able to eat out, dining hall, cook , etc

- More potential problems such as friends getting you sick, you lose your laptop
- Add more interaction with NPC with AI, including friends, TAs, and professors.
- Add more variety of fighting mechanics
- Make more possible endings such as choosing to go to grad school or get a job or start your own company
- Add more possible activities such as
    - Office hours
        - Know the professor better and material better (potentially add a way so if you're closer with your professor you can ask for a grade boost?)
        - Less energy and more stress
    - Part-time job
        - More money to spend on resources
            - Better School Resources or Better Food Resources
        - Less time to do other things
    - Play video games
        - There's a chance of boosting happiness
            - Could lose games and decrease happiness too (risk factor)
        - Less time to study guaranteed

Which does the tech stack look like and why did you choose these over alternatives?
(Feel free to discuss with your PM! Examples: React, Python, Java, etc. You do not need to know how to use these right now.)

Godot (Python friendly environment)
- Pros
    - More user friendly
    - Integrated Github feature for collaboration
    - Lower learning curve
    - Strong built it tools especially for 2D game development
    - Cross platform support
    - Python easier to learn
- Cons
    - Less resources to learn
    - Less known
    - Limitations to 3D features
    - Limited advanced features compared to Unity

Unity
- Pros

Unity provides a large number of ready-to-use animation, sound, and UI components to accelerate development.

If you're making a 3D game, it's better suited for operations because it's more versatile.

-   Cons

Unity's physics engine (Physics2D/3D) is primarily used for action games. The data management we favor may not be able to use most of the features.

Unity uses C#, a language we're not familiar with.

-   We eventually decide to use Godot for the following reasons:
    -   Compared to unity, which is a more complicated system, it is easier to learn how to use Godot since it is based on Python.
    -   We do not need to use the 3-D features in Unity since we will be making our game in 2D
    -   It is easier to collaborate with groupmates compared to Unity which is inconvenient to collaborate even with GitHub

What will the project timeline look like?
(Discuss this with your PM as well! You don't have to stick to it, but this should give you a general guideline for how the project should progress.)

W Group 16 PLAN

Tree Decision Matrix
Start Game
-   Choose Major
    -   STEM
        -   Higher Difficulty but higher rewards such as not need as high of a GPA
        -   More knowledge per activity but less energy
    -   Humanities
        -   More creativity, lower stress but medium rewards
        -   Slightly more knowledge and less energy
    -   Business
        -   Very low stress but rewards are almost randomized at end
        -   Much more energy per activity but also lose a lot more knowledge
    -   Undecided
        -   Randomized courses between all 3 categories

- ■ Completely random
- ● Player Enters First Year of College
  - ○ Possible Activities:
    - ■ Socializing
      - ● + 10 Energy
      - ● -5 Knowledge
      - ● -5 Stress
    - ■ Studying
      - ● -10 Energy
      - ● +10 Knowledge
      - ● +5 Stress
    - ■ Eating/sleeping
      - ● +20 Energy
      - ● -2 Knowledge
      - ● -2 Stress
    - ■ Extracurriculars
      - ● +0 Energy
      - ● +5 Knowledge
      - ● +0 Stress
      - ● + some sort of resume boost?
  - ○ 85% chance the player gets around their grade of their knowledge bar on each midterm each level
    - ■ So if knowledge bar is at 80, it's a 85% chance they get a around an 80% on the midterms for that level
  - ○ 5% the player gets a score greater than the knowledge percent, and 10% chance they get a score lower than the knowledge percent
  - ○ 60% of energy bar that they win the fight if they get a bad grade and choose to fight

- ● Player Enters Second Year of College
  - ○ Possible Activities:
    - ■ Socializing
      - ● + 15 Energy
      - ● -10 Knowledge
      - ● -10 Stress
    - ■ Studying
      - ● -20 Energy
      - ● +25 Knowledge
      - ● +15 Stress
    - ■ Eating/sleeping
      - ● +25 Energy
      - ● -10 Knowledge
      - ● -10 Stress

- - - ■ Extracurriculars
    - -2 Energy
    - +5 Knowledge
    - +0 Stress
    - + some sort of resume boost?
  - ○ 70% chance the player gets around their grade of their knowledge bar on each midterm each level
    - ■ So if knowledge bar is at 80, it's a 70% chance they get a around an 80% on the midterms for that level
  - ○ 20% the player gets a score greater than the knowledge percent, and 10% chance they get a score lower than the knowledge percent
  - ○ 45% of energy bar that they win the fight if they get a bad grade and choose to fight

- ● Player Enters Third Year of College
  - ○ Possible Activities:
    - ■ Socializing
      - + 20 Energy
      - -20 Knowledge
      - -20 Stress
    - ■ Studying
      - -25 Energy
      - +40 Knowledge
      - +55 Stress
    - ■ Eating/sleeping
      - +30 Energy
      - -15 Knowledge
      - -15 Stress
    - ■ Extracurriculars
      - -5 Energy
      - +8 Knowledge
      - +0 Stress
      - + some sort of resume boost?
  - ○ 50% chance the player gets around their grade of their knowledge bar on each midterm each level
    - ■ So if knowledge bar is at 80, it's a 50% chance they get a around an 80% on the midterms for that level
  - ○ 25% the player gets a score greater than the knowledge percent, and 25% chance they get a score lower than the knowledge percent
  - ○ 35% of energy bar that they win the fight if they get a bad grade and choose to fight
- ● Player Enters Fourth Year of College
  - ○ Possible Activities:
    - ■ Socializing

- - - - - - ● + 40 Energy
  - - - - - ● -40 Knowledge
  - - - - - ● -30 Stress
  - - - - ■ Studying
  - - - - - ● -50 Energy
  - - - - - ● +60 Knowledge
  - - - - - ● +60 Stress
  - - - - ■ Eating/sleeping
  - - - - - ● +50 Energy
  - - - - - ● –30 Knowledge
  - - - - - ● -20 Stress
  - - - - ■ Extracurriculars
  - - - - - ● -10 Energy
  - - - - - ● +10 Knowledge
  - - - - - ● +0 Stress
  - - - - - ● + some sort of resume boost?
  - ○ 40% chance the player gets around their grade of their knowledge bar on each midterm each level
    - ■ So if knowledge bar is at 80, it's a 40% chance they get a around an 80% on the midterms for that level
  - ○ 25% the player gets a score greater than the knowledge percent, and 25% chance they get a score lower than the knowledge percent
  - ○ 35% of energy bar that they win the fight if they get a bad grade and choose to fight

- ● Final Calculations:
  - ○ STEM
    - ■ >3.7 = dream career
    - ■ >3.3 = career in desired field
    - ■ >3 = somewhat related field
    - ■ <3.0 = jobless and fail game
    - ■ Maybe incorporate energy as soft skills and ability to work?
  - ○ Humanities
    - ■ >3.9 = dream career
    - ■ >3.7 = career in desired field
    - ■ >3.5 = randomized chance their parents own a business or repeat school
    - ■ <3.3 = jobless and fail game
  - ○ Business
    - ■ >3.95 = dream career
    - ■ >3.7 = career in desired field
    - ■ >3.5 = randomized chance their parents own a business or repeat school
    - ■ <3.3 = jobless and fail game
  - ○ Undecided

- Random in each category