VATS
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Major Milestones
- Finish Research (Week 1)
- Finish Game (Week 8)
- Train NLP & Sprite Models (Week 12)
- Refine NLP & Sprite Models (Week 14)
- Finish Control Pipeline (Week 16)

Timeline
Week 1
- Research game engine technologies and frameworks that will work best for this application for the minigame. The deliverable will be the technology/framework that we will be using for the game portion of the project. - Skyler & Thomas
- Research NLP model/frameworks (Hugging Face,etc): this involves looking at various different open source NLP models/frameworks that exist and figuring out the best one for our needs that would work well with short inputs- Soham
- Research sprite generation models that will fit the needs of our application. - Ary

Week 2-4
- Develop a main test level for users to demo their gameplay. This will be the playable level that the user can test out their character on. - Thomas
- Develop the game logic for the character attacks. - Skyler
- Define a user input format standard for character descriptions for user: establishing a standard for users to input/type out during demo that lets our NLP model perform at its best and not hallucinate. - Soham
- Investigate whether we need to train or fine-tune a sprite generation model or if an API is necessary for our project: This involves researching best practices when using sprite generational models and figuring out which approach/practice is most suitable for our use case. We would need to figure out what type of input the sprite generation model needs to format the output of the NLP model - Ary

Week 5-8
- Utilize the given sprite animation for moving and attacking. Update the game to be able to use whatever sprite it is given to be the playable character. - Thomas
- Develop navigation so the user can jump and move around in the game. - Skyler
- Develop the logic to generate the sprite as per the user's description: This entails using the output from the NLP model as input for th~e sprite generation model. Either direct API testing or model fine-tuning may be required - Ary
- Test the accuracy and efficiency of different NLP models in converting user-input descriptions to sprite attributes: Explore 2-3 options for NLP models and test them with the same user inputs(around 20 samples) and figure out which model performs best for our pipeline. - Soham

Week 9-12

- Build and test baseline NLP model pipeline (description -> attributes/abilities/physical characteristic): create and run a full pipeline all the way from user input to sprite generation to game generation. Test with various inputs and fix bugs - Soham & Skyler
- Utilize the physical characteristics from the NLP model to generate a sprite: Use an API or the fine-tuned model to generate the sprite per the output of the NLP model- Ary & Thomas

Week 13-14

- Fine-tune NLP model for better processing to handle more ambiguous inputs and consistent outputs: work with more vague user inputs and fine tune NLP model to get consistent outputs even when user is not super descriptive in their prompts. – Soham
- Explore options for multi-sprite generation, so users can select between multiple sprites(Stretch Goal): Once we know one sprite can be generated from the user's description, we can explore generating multiple different sprites and allowing the user to select one. This is a stretch goal. - Ary
- Design control program to autonomously handle interaction between the user, generation models, and game. Creating overhead program logic that will handle the synchronous interaction between all parts. - Thomas & Skyler

Week 15

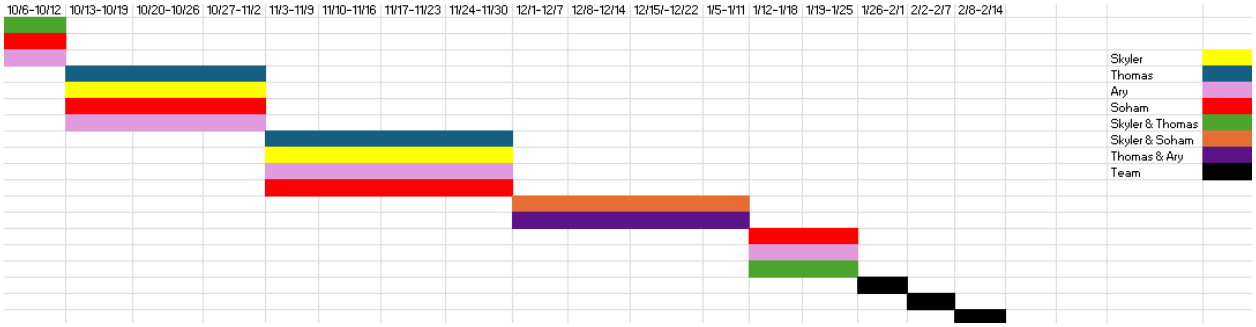
- Integrate NLP + Sprite + Stats/Attributes into a user-friendly and demoable pipeline/application: this task is more catered towards creating a user friendly demo for CEAS EXPO that will wow the users when using our AI generated game/sprite generator. - Team

Week 16

- Test end-to-end pipeline performance and bugfix/ensure good user experience. Develop unit tests to weed out any major bugs in our program. – Team.

Week 17 - Senior Design Expo

- Finish presentation and powerpoint for the Expo - Team



Efforts

Task	Effort (1-10)
Research game engine technologies and frameworks that will work best for this application for the minigame - Skyler & Thomas	Thomas - 40% Skyler - 40% Soham - 10% Ary - 10%
Research NLP model/frameworks (Hugging Face,etc) - Soham	Soham: 70% Thomas: 10% Ary: 10% Skyler: 10%
Research sprite generation models that will fit the needs of our application. - Ary	Ary: 70% Soham: 10% Thomas: 10% Skyler: 10%
Develop a main test level for users to demo their gameplay. - Thomas	Thomas: 70% Skyler - 10% Soham - 10% Ary - 10%
Develop the game logic for the character attacks. - Skyler	Skyler : 70% Thomas - 10% Soham - 10% Ary - 10%
Define a user input format standard for character descriptions for user. - Soham	Soham: 70% Thomas: 10% Ary: 10% Skyler: 10%
Investigate whether we need to train or fine-tune a sprite generation model or if an API is necessary for our project. - Ary	Ary: 70% Soham: 10% Thomas: 10% Skyler: 10%
Utilize the given sprite animation for moving and attacking. - Thomas	Thomas: 70% Soham: 10% Ary: 10% Skyler: 10%
Develop navigation so the user can jump and move around in the game. - Skyler	Skyler: 70% Soham: 10% Ary: 10% Thomas: 10%
Develop the logic to generate the sprite as per the user's description. - Ary	Ary: 70% Soham: 10% Thomas: 10%

	Skyler: 10%
Test the accuracy and efficiency of different NLP models in converting user-input descriptions to sprite attributes. - Soham	Soham: 70% Thomas: 10% Ary: 10% Skyler: 10%
Build and test baseline NLP model pipeline (description -> attributes/abilities/physical characteristics) - Soham & Skyler	Skyler: 40% Soham: 40% Ary: 10% Thomas: 10%
Utilize the physical characteristics from the NLP model to generate a sprite. - Ary & Thomas	Thomas: 70% Ary: 10% Skyler: 10% Soham: 10%
Fine-tune NLP model for better processing to handle more ambiguous inputs and consistent outputs – Soham	Soham: 70% Thomas: 10% Ary: 10% Skyler: 10%
Explore options for multi-sprite generation, so users can select between multiple sprites(Stretch Goal) - Ary	Ary: 70% Soham: 10% Thomas: 10% Skyler: 10%
Design a control program to autonomously handle interaction between the user, generation models, and the game. - Thomas & Skyler	Thomas - 40% Skyler - 40% Soham - 10% Ary - 10%
Integrate NLP + Sprite + Stats/Attributes into a user-friendly and demoable pipeline/application - Team	Thomas - 25% Skyler - 25% Soham - 25% Ary - 25%
Test end-to-end pipeline performance and bugfix/ensure good user experience – Team.	Thomas - 25% Skyler - 25% Soham - 25% Ary - 25%
Finish presentation and PowerPoint for the Expo - Team	Thomas - 25% Skyler - 25% Soham - 25%

	Ary - 25%