MS3 Progress Report

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Vision: *In one paragraph, what is your current vision for the system you are building? How has it evolved from previous sprints? Your MS0 proposal was not a contract. It's okay for you to make changes, even big ones.*

Our final product is a bit different than what we initially envisioned, but we are all very happy with the end product. In the previous sprints, we envisioned each level having a 'final boss' at the last stage of the level. In addition, we wanted to incorporate puzzle elements such as a key and lock system. Our current implementation decided to have more levels that are larger and more densely populated with objects, much more complicated than our prior level-sketch storyboards. We added 'traps' within the level, luring the player to a path with no way to get to the next stage to replace our puzzle element. In addition, we added multiple enemies throughout the levels and more obstacles to replace the final boss. We shifted the focus of our game from fighting to solving puzzles in the respect that the player doesn't need to kill any enemy to win (although they have the option to) they just need to figure out the path to the end. The result was a completely playable end-to-end game. We created a rich set of features, and as we hoped after MS2, our decision to use js_of_ocaml was costly at first, but greatly streamlined the process of making our game afterward.

Summary of progress: *Write a one or two paragraph description of what your team accomplished during the previous sprint. What functionality did you work on? What did you show off in your demo?*

During this sprint, we implemented the main functionalities and designs for the game using a new library, Js_of_ocaml, to process our graphics. We all developed familiarity to this library and were able to efficiently use it to display our game in a browser window with an HTML file. All of our graphics were hand-drawn by one of our team members. We also added movements and animation to the player so Glarkson moves with a keypress. Additionally, we implemented parabolic movement and gravity to the jumping motion. We also added compatibility for multiple keypresses, so the player can move in diagonal directions (e.g. move up and right at the same time). In addition to the player sprite, we added enemy sprites and power ups, which have animations and movements as well. We created the entire functionality of collisions, allowing the player to stand on individual bricks, get hit by spikes, and defeat enemies. We also designed a total of 9 unique stages with different challenges for the player to complete. In our demo, we will demonstrate our game, showing the interconnection between everything we've been working on thus far.

Activity breakdown: For each team member, give a bulleted list of the responsibilities that team member had and the activities in which they participated during the sprint.

Julie
- Designing and implemented levels 1 and 2
- Implemented multiple key presses at once
- Helped debug player jumping
- Implemented functionality of player falling off side of blocks / ground
- Assisted with collision reasoning
- Wrote specifications for functions

- Implemented health functionality / reaction to collision with spikes
- Collaborated with Greg to determine next stage of player
- Overall debugging assistance
- Added most objects with damage functionality
- Added test cases

Vivian
- Designed and drew all graphics for sprites, enemies, powerups, and backgrounds
- Implemented all GUI rendering
  - Player, enemies, powerups, blocks/obstacles, health, score, and text
- Implemented all sprite animation
- Implemented powerups (object details, animation, usage)
- Implemented enemies (sprite details, movement, animation)
- Added new key commands
- Assisted with level design
- Created HTML & CSS files and added instructions
- Overall debugging
- Added test cases

Greg
- Figured out how to properly compile code with ocamlbuild (to have working _build directory)
- Collaborated with Julie to determine next stage of player
- Level/stage transitions (and resetting player position after each)
- Started enemy::enemy collisions
- Implemented working make docs and make test
- Make targets for testing, cleaning, zipping.
- Implemented first jumping (without gravity)
- Designed preliminary level 1 and designed and implemented final 3
- Added holes to the gameplay
- Added portals to game
- Added test cases
- Cleaned up code for style (abstraction, proper name schemes for variables)
- Final writeup

Aashri
- Implemented collision reasoning
  - Player colliding with objects
  - Player colliding with enemies
  - Player colliding with powerups
- Assisted in multiple key presses at once in conjunction with Julie
- Assisted in prototype moving capabilities and ultimately implemented final player movements
  - Specifically jumping capabilities
- Wrote specifications and documentation for majority of functions in model.ml and model.mli
- Overall debugging assistance

- Created prototypes for the types.mli file, the basis of all sprites and actors in the game
- Cleaned up code for style (abstraction, proper name schemes for variables)
- Added test cases

Productivity analysis: As an entire team, how productive were you? Did you accomplish what you planned? Were your estimates of what you could do accurate, or far off? Write a paragraph addressing those questions.

We were extremely productive during this sprint. We went from having an image loading on a browser to a full-functioning, playable game. Since we changed our vision, we accomplished everything we planned and even a bit extra. We incorporated more obstacles and power ups that weren't in our previous vision. Our estimates of what we could do were accurate, although everyone on the team worked extremely hard to complete everything. The one thing that we wanted to implement but didn't was background music, but the issue was with Google Chrome not allowing sound from an unknown source autoplaying.

Scope grade: Give your team a scope grade for this sprint—Satisfactory, Good, or Excellent—based on your experience of those levels of scope in the assignments thus far in this course. Write a paragraph or two providing a detailed justification of why you gave yourself that grade. Please be honest: we want you to reflect candidly on your progress. Your sprint grade is not going to be based on what you self-assign here.

We would categorize our scope grade as **excellent**. Although our vision has shifted, we have shown creatively beyond our previous goals. We completed everything in our previous good scope, including nine unique stages and damage detection. Although we decided not to have a final boss, we implemented many more small enemies and designed tricky paths for the player to take. One addition that we implemented that was not in our initial vision was health power-ups that grant the player and extra heart and stay with them throughout stages. Additionally, we added a player score that changes every time the enemy is killed. Lastly, all of the images were hand-drawn and animated, and they truly put the whole game together.