

Mat3D Release Plan

3D Matrix Calculator

Release Date; July 26th, 2018

Revision: 1.0 July 1st, 2018

Team Name: Matrix Masters

High Level Goals:

1. Be able to define and compute matrices through robust calculations
2. Have a user interface which facilitates matrix computation
3. Be able to apply defined matrices to a externally loaded 3D object
4. Have a working prototype used to debug the final product
5. Have a working github repository with the entire team's work
6. Deploy the website hosting the matrix calculator

User Stories:

Sprint 1- Parsing, initial UI, initial 3D, getting started with github

1. As a matrix calculator developer, I want a working github repository and have everybody acquainted with Github so that we can share code more easily. **TimeFrame: 1 day**
2. As a matrix calculator user, I want a 3d viewport to be implemented so that I can view any 3d models I import into the calculator. **TimeFrame: less than 1 day**
3. As a matrix calculator developer, I want a user input parser so that the user can provide complex matrix calculations. **TimeFrame: 4-7 days**
4. As a matrix calculator developer, I want the top bar to take user input so that the user can specify matrix calculations. **TimeFrame: 1 day**
5. As a matrix calculator user, I want to be able to import/export OBJ files so that I can display the on screen. **TimeFrame: 1 day.**
6. As a matrix calculator user, I want to be able to move the camera within the 3d viewport so that I can see my 3D model at different angles. **TimeFrame: 1-3 days**
7. As a matrix calculator developer, I want a matrix cell parser so that a user can define scalars such as complex numbers, trig functions within their matrices. **TimeFrame: 2-3 day**
8. As a matrix calculator developer, I want a sidebar variable parser so that a user can define complex combinations of defined matrices. **TimeFrame: 2-3 days**
9. As a matrix calculator user, I want changes to any matrix to affect the other defined matrices so that my calculations can be more impactful. **TimeFrame: 2 day**
10. As a matrix calculator developer, I want a sidebar so that we can put matrix variable items on that sidebar. **TimeFrame: 1-2 days**

Sprint 2- 3D and UI

1. As a matrix calculator developer, I want the 3d viewport to switch between 3d models and matrix input depending on a toggle **Timeframe: 2-3 days**
2. As a matrix calculator developer, I want to develop the UI within the 3D viewport so that the user can interact with aspects the calculator **Timeframe: 4 days**
3. As a matrix calculator developer, I want to develop matrix functionality missing from mathjs such as LU decomposition and create functions for the calculator so that the user has access to those operations. **TimeFrame: 4 days**
4. As a matrix calculator user, I want my sidebar to include a stack when in 3D mode so that I can stack transformations onto my model. **TimeFrame: 2-3 days**
5. As a matrix calculator developer, I want the top bar to change to a file loading area when in 3d mode to facilitate loading models. **TimeFrame: 1 day**
6. As a matrix calculator user, I want to be able to add/delete matrices within the sidebar so that I can control which matrices I'm using. **TimeFrame: 1 day**
7. As a matrix calculator user, I want to be able to define the dimensions of my matrices on the sidebar so that I can have matrices beyond just 4x4. **TimeFrame: 1 day**
8. As a matrix calculator developer, I want scalars and matrices that are not 3x3 or 4x4 to be inaccessible when in 3d mode so that users know they are not valid 3d transformations. **TimeFrame: 2-3 days**
9. As a matrix calculator user, I want the camera to move with my object if the object is translated so that I can follow my 3D model more closely. **TimeFrame: 1 day**
10. As a matrix calculator user, I want an option to display a coordinate system in order to better visualize my 3D model in 3D space. **TimeFrame: less than 1 day**

Sprint 3 - Deploying and finishing up

1. As a matrix calculator developer, I want to deploy Mat3D on an actual website so that everyone has access to the end product. **TimeFrame: 1 day**
2. As a matrix calculator developer, I want a prototype of the project ready so that we can debug it into the end product. **TimeFrame: 2 days**
3. As a matrix calculator user, I want my matrix transformations to be applied in real time in order to see how my model changes when different transformations are applied. **TimeFrame: 2 days**
4. As a matrix calculator user, I want to be able to toggle between scalar and matrices within the sidebar in order to better organize my defined values. **TimeFrame: 1 day**
5. As a matrix calculator developer, I want a bottom bar which houses matrix/scalar operations so that we can better organize the web app. **TimeFrame: 1 day**
6. As a matrix calculator developer, I want the bottom bar to change to common 3d transformations within 3d mode so that users can have easy access to these transformations when in 3d mode. **TimeFrame: 2-3 day**
7. As a matrix calculator user, I want the matrix cells to be large enough for touch input so that mobile users don't have trouble using the calculator. **TimeFrame: 1 day**

8. As a matrix calculator developer, I want a timer on the page showing how long it took to carry out a matrix calculation because it would be beneficial for debugging and a fun addition. **TimeFrame: half a day**

Product backlog:

None. Each user story and portion of calculator functionality is integral to the calculator's implementation. Nothing should be left out; and due to the intended functionality of the calculator, anything added would be extraneous and distracting.