Meeting Logs (Updated as of May 29th, 2024):

Previous Meeting log [Joshua's Summer Research Log](https://docs.google.com/document/d/1a2viNeeHHhnYJJfwrSv-6Lou_-nmjlPoyUXkUgMOEcU/edit?usp=sharing). Updated to change structure, include:

* minutes of the meeting
* main discussion points
* the assigned to-do list according to my understanding

1. Meeting with Professor Gaber (May 29th, 2024)

Time: 12pm to 1 pm

Discussion Points:

* Review the need for creating a new Database, Mapping tool documentation already includes a created database, so what is the purpose of creating a new one?
* Meeting outcome formats should contain two items at minimum. The discussions and the outcomes which should display my understanding of the discussions. (ex. In the form of todos)
* Case studies should be reviewed and understood, to get a good idea of the system and its uses. For example, how it would be used in a demo setting.
* What would the GUI ideally look like? Design is included in the May 29th, project slides that the professor explained to me
* Project updates should include functional models and system architecture where required. Reference previous examples, such as the Mapping tool documentation for more info.

To-dos:

* Compare the currently designed database with the mapping tools database.Determine if there really is a need to create a new one. Discuss with other members such as Omar to get a better opinion.
* Restructure the formatting of my meeting and research logs, my previous logs are not sufficient, so maintain my meeting and research logs in the suggested format.
* Review details and documentation sent by others such as Elena and previous meeting slides, to better understand the case studies and therefore understand the system’s purpose.
* Moving forward, any tools or UIs that I create or build should also include the appropriate documentation such as functional models and system architecture.
* When designing the GUI, reference others for what certain components should look like. For example, regarding the ESN tab for the tool, ask Omar for help regarding the design.

1. Progress Meeting with Omar (June 3rd, 2024)

Time: 11:45 am to 12:30 pm

Discussion Points:

* Is the interface on track for what the project needs? Matches with Omar’s description and we can integrate the Energy Semantic Network using information provided in the PSM UI.
* Outstanding tasks were discussed on what improvements to make. Will be listed in To-dos.
* Store the data in a database / using JSON and sending the data to the backend. Discussed pros and cons and what we will do. Will most likely be handled on the backend.
* Overall, progress is good according to Omar, we need to follow up with the Professor and see his input.

To-dos:

* Implement User ID/User Name into PSM, as a form before entering the PSM module or small input beforehand. Discussed with Omar, and adding just Username and passing it to the backend for userID handling and storage is what we discussed.
* Upload code to github for Omar and others to see and make changes to.
* Add energy loads as outlined by the project architecture slides.
* Add more definitions for buildings, ie. Hospital or other types of buildings. Think about how buildings will be added and defined in the PSM UI.
* Add 2 buttons, one to save PSM to the database/send to the backend. Another button to create the ESM for the defined energy flow.
* Follow up with the Professor in a meeting with Omar to discuss if this is on track with the project progress.

1. Project Meeting with Omar (June 5th, 2024)

Time: 1:30 to 2:30 pm

Discussions:

* Maintain a shared development log, where Omar can propose new features to be created and I can display what has been added or is being worked on.
* Details can be found here: [Energy UI Development Log](https://docs.google.com/document/d/1gN_WFcgnlaWVtEjziuJFRS4NeuOMXhC3bUhRcGS3G_U/edit?usp=sharing)
* Omar will develop and create the energy data, which he will send to me and I can display using D3.js.

To-dos:

* Continue building out features that are being added, and update Omar on the progress.

1. Project Meeting with Omar (June 10th, 2024)

Time: 5pm to 5:30 pm

Discussions:

* Showed me the ontology diagram with all the class definitions and model structure.
* Shared his github repo with me so I can see class models.

Todo:

* Update PSM module components to match the ESN ontology diagram/ program structure.
* Learn and review d3.js to visualise data sent from the ESN
* Add default values and parameters so the user doesn't have to fill out many fields.

1. Project Meeting with Omar (June 18th, 2024)

Time: 5:30 pm to 6:30 pm

Discussion Points:

* Explained the next steps for designing the Meta-classes and visualising the Energy Semantic Network using D3.js
* Discussed the negotiation and collaboration algorithms, the differences and uses between the two and possible implementations
* Negotiation: Represent energy as a price, such as prices used in Off-peak, on-peak, etc times. Once energy is represented as a price, 2 LLMs can discuss and negotiate the price to either reach an agreement or reject the offer.
* Collaboration: Using the external tools developed by the team. Ie. Switch, Transys, Homer etc. These tools will calculate the optimal energy usage for a given scenario. For example, an example building may use 10% PV/Solar, 20% Wind and 70% Hydro.
* This information is important because once I am able to complete my current developments regarding the interface, I will be helping Omar possibly implement and design some of these models/algorithms.
* Current database design, Omar will get started with the design of a graph database, using neo4j. After that I will integrate into the interface where applicable.

To-dos:

* Implement the correct meta-class data as soon as possible.
* Find a way to send data to the ESN component and update the network using that data.
* Learn and understand more about the negotiation and collaboration algorithms, as I will be potentially helping Omar with the implementation.
* Learn about graph data bases and neo4j, so I can use it effectively when Omar and I create the database.

1. Project Meeting with Omar (June 21th, 2024)

Time: 6pm to 7:30pm

Discussion Points:

* Discussed Research points regarding the negotiation algorithm
* Reviewed user interface changes and discussed next steps and what needs to be added to the interface.
* Omar currently has a LLM based approach to the algo, I will explore other avenues, such as game theory or reinforcement learning.

To-dos:

* Details can be found here: [Energy UI Development Log](https://docs.google.com/document/d/1gN_WFcgnlaWVtEjziuJFRS4NeuOMXhC3bUhRcGS3G_U/edit?usp=sharing)
* Improve home page styling and work on features outlined in the log, such as implementing value nodes etc.
* Research negotiation algos with a focus on Game Theory and Reinforcement Learning (Only slightly familiar with these topics, so learn these first)

1. Progress Update with Professor Gaber (June 28th, 2024)

Time: 2pm to 3pm

Discussion Points:

* Discussed current progress on database connections with the user interface.
* Discussed next steps regarding project plan and functional model diagrams

To-dos:

* Make a functional model of the current user interface and what I have developed so far. Use the mapping tool functional model as reference.
* In the functional model, include what is currently completed, what is being worked on currently, and what is left to complete.
* Update project plan to include risk analysis, transactive model, negotiation algorithm, and the collaborative simulation between different tools (NR-HESS, Transys, etc)

1. Progress Update with Professor Gaber (July 11th, 2024)

Time: 9:30 am to 10 am

Discussion Points:

* Discussed current focus of the project is not inline with the core objectives. Spending more time on minor details and not on the main focus of the project.
* Discussed the current format of how I present my progress. Should be more structured with a project plan, weekly log of accomplished tasks, Meeting log and a word file describing project details and specifics regarding current implementations.

To-dos:

* Refine the listed documents above and prepare to show them to the professor. Only once I have created these documents and prepared my plan, re-schedule another meeting with him.
* Focus more on the deliverables and these are the documents I should be presenting
  + Meeting Log
  + Project Description File (Outlining specific details such as implementation details or algorithms)
  + Excel sheet with 2 sections:
    - Project Plan consisting of tasks, subtasks, start and end dates and progress
    - Weekly log describing what I have accomplished or worked on this week and prev. weeks.