Project Plan

Due 6/18/2025

1. **Group:**
   1. Amelia Whorton (U00781564)
   2. Clarissa Milligan (U00825028)
2. **Project Dataset:**
   1. [sed\_act\_3.26.2025\_49\_feature.csv](https://raidermailwright-my.sharepoint.com/:x:/g/personal/whorton_10_wright_edu/ERul2LRVlQtDgh__RfJrxUoBFVoJpZNz7DJGsrywoNBPqg?e=tgk06d)
   2. Target : “Flow\_score\_mean”
   3. Number of features : 49
   4. The dataset consists of data from 63 sedentary activities (such as writing, studying, and coding). The participants in this study wear a Garmin watch while they do a mentally engaging activity. During each activity the individual’s heart rate, oxygen saturation, and estimated stress levels are collected at a frequency of once per second. The subject rates their overall fatigue level on a rolling basis of 9 or 20 minutes with the EngagementTracker application. Once the subject finishes the task, they took a short version of the flow state scale (lowest score: 9 highest score: 45) to assess their experience of flow.
3. **Goal 1:** To evaluate fit of regression models to the data in a way that is easy to interpret.
4. **Goal 2:** Utilize density clustering algorithms to identify features that may predict stress levels
5. **Timeline:**

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| Date | Student | Task |
| June 22, 2025 | Amelia | Set up GitHub |
|  | Clarissa | Research and finalize which density clustering algorithms will be compared |
| June 24, 2025 | Amelia | EDA and prepare data for use. |
| June 29, 2025 | Clarissa | Implement density clustering algorithms like DBSCAN and those researched |
| July 6, 2025 | Clarissa | Implement code to compare stress levels among different clusters |
| June 21, 2025-July 1, 2025 | Amelia | Use model significance, coefficient of determination and paired t tests to determine which regression models and features predict flow state most reliably. |
| July 13, 2025 | Clarissa | Complete experiments |
| July 14th | Amelia, Clarissa | Discuss presentation and map out talking points |
| July 20, 2025 | Amelia, Clarissa | Complete presentation |