For simplicity and time constraints there is a single file for all the functions, of course there are parts of the code targeting specific dimensions. The file needs to run 8 times, each time with a different file variable (1-8) to calculate the 8 functions.

**Week 1 to 7**

All standard values were used. Default hyperparameters for the GaussianProcessRegressor() object and BETA set to balanced with 1.96. Even the model was using a balanced BETA but we can still see it had a tendency for exploitation in the upper right region.

The following images show the 2D model with can be easy to observe what is going on. For upper dimensions no charts are plotted.

|  |  |
| --- | --- |
| Week 2  A white graph with yellow dots and numbers  Description automatically generated | Week 3  A white sheet with numbers and dots  Description automatically generated |
| Week 5  A white sheet with numbers and dots  Description automatically generated | Week 7 |

The search grid has a radius of 20% from the last results, this is represented in code as discovery\_radius variable, I have the feeling no wider or narrower radius was required as the results were targeting an area

**Week 8**

Introduced exploitation with Beta = 1.0, balanced with Beta = 1.96 and exploration with Beta = 2.5  
All results are now displayed, and one will be chosen for the weekly submission form with the following criteria:

* If balanced and exploitation are close, then **balanced** is chosen
* If balanced and exploitation are not close, then **exploratory** results is chosen

**Week 9**

Used only exploration and changed to polynomial kernel to see if we can find a different area in the grid with better results

A white sheet with numbers and dots

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