Dear Candidate,

Thank you for applying to the position of nERD Researcher Intern role at nPlan. We are excited to learn more about what you can do, and hope you will impress us with your machine learning skills. We would appreciate it if you could complete the following task using Python 3.6 or above. Your code does not need to be of production quality, but we do expect you to follow good coding practises and style standards.

The attached dataset is a modification of a protein-protein interaction dataset described in [Zitnik & Leskovec, 2017](https://arxiv.org/abs/1707.04638), where protein interactions are modelled as graph edges. The data consists of train, test and validation sets, each of which has 4 files:

* `SET\_feats.npy` contains a numpy matrix, where each row is a numerical feature vector corresponding to a graph node
* `SET\_labels.npy` contains a numpy matrix, where each row is a K-hot vector of labels for each graph node
* `SET\_graph\_ids.npy` contains a numpy array where each element value indicates the graph ID to which the given node belongs.
* `SET\_graph.json` contains information about all graphs in this data set. The `nodes` field contains a list of dictionaries corresponding to each node. Under the `links` field, you will find a list of `source` and `target` pairs representing graph edges.

Implement a machine learning algorithm to train on this dataset.

Your submission should include:

1. The scripts that you used to train and test your model.
2. A pre-trained model in the format your script requires.
3. Instructions on how to run your code and any package requirements.
4. A short description of your observations, findings and any assumptions you’ve made.

We will use your submission as a topic of conversation during any potential follow-up interview, and you consequently authorise us to use your submission internally for the sole purpose of evaluating your application. We suggest that you spend 4-6 hours on this task, and would ask you to return your submission within 2 weeks from receiving this email. If you need more time, do not hesitate to ask.