Company Background:
AI Arrive is an artificial intelligence company with the vision to create AI products that accelerate research and enhance our understanding of human disease. AI Arrive partners with pharmaceutical clients to greatly accelerate R&D and drug development efforts by helping clients to make go/no-go decisions, prioritize drug targets, and uncover the mechanism of action (MoA) for drug targets. *PathwayBuilder* is an advanced AI literature and biological data extraction engine; designed to piece together new biomedical literature to generate 'hypothesis' biological pathways. PathwayBuilder can provide new value beyond pathway analysis by identifying potentially new biological pathways that may not be captured in pathway annotation.

Team Size: 4-5 Students

Location: Remote, client/team meetings will be held with Zoom.

Project Summary: AI Arrive would like to develop a beta PathwayBuilder solution using three sources of data: 1) Biomedical journal articles, 2) DepMap co-dependencies, and 3) KEGG pathway analysis. The end goal would be to provide deep search results in a dashboard and visualization of potential relationships using a graph database. The first step would be to extract relationships from the three data sources and construct individual graphs using Neo4j graph database and to containerize the module as a microservice in Docker. The next step would be to provide summary statistics in the dashboard for each graph network. The next step would be to overlay the three graphs to identify multiple hits and then use the hit list to refine a search query. The search query would then be used to further query the three data sources. Another goal would be to develop out visuals using d3.js and/or other visualization tools to show the networks. All IP rights will be retained by AI Arrive.

Key Skills/Technologies: A background in developing ETL pipelines, NLP, network analysis, working with databases and visualizations w/ d3.js would be beneficial for tackling this project. The team can seek guidance from the client.

Student Benefits:
- Freedom to develop a creative solution to the problem.
- Future paid internship opportunities
- Build leadership skills by seeing the project through to completion.

- Opportunity to work on a project that is high impact and can make a difference

Contact Information:

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