

## MeshAI: Hospital Scheduling

Our goal was to use a decision tree algorithm to extract specific rules from a given hospital staff schedule. With scheduling being costly and time consuming, our algorithm extracts specific decision rules to ease the process. Due to the large number of employees in hospitals and the need for efficient and organized schedules, hospital scheduling is a crucial aspect of daily planning. Creating these schedules is a time-intensive process that can have errors when done manually, so automating this process will provide a more efficient solution to this problem. MeshAI has developed a program that will take input rules from different employees and create a schedule, but they were unable to devise a method to extract the rules from employee input. The program we created solves this by extracting key rules for input. These rules include the days of the week worked by the employee, shift times, job type and vacation times. We designed a Gini impurity based decision tree to predict what job any given employee would perform, based on historical scheduling data. We then developed an algorithm to analyse the decision trees output, and extract trends based on the trees decision criteria at each node. Finally, the results of the analysis are returned in a way that is easily interpreted by a human. Our model performed with an accuracy of 81%.