

So far, we have successfully built the core functionality of our surgery simulation web application. Users can input their medical condition, age, gender, and preferred anesthesia type, and the application tailors a simulation based on these selections. The current implementation supports four different medical conditions: cardiac, orthopedic, neurological, and appendicitis. Additionally, users can choose between three anesthesia types: local, regional, and general. Upon inputting their details, the application generates a customized textual explanation about the selected surgery and a visualization that represents the impact of the surgery at different stages: pre-operative, intra-operative, and post-operative. The y-axis of the graph represents the intensity or physiological impact of the surgery at each stage, which dynamically changes based on the user's selections. One of the most challenging aspects of the project will be implementing a real-time vital sign monitor that mimics the heartbeat and blood pressure monitors commonly seen in hospitals. Our goal is to create a dynamic visualization that updates as users input different medical conditions and parameters. This will require designing a live chart that continuously updates with heart rate and blood pressure fluctuations, adding realism to the simulation. Additionally, we are still brainstorming which additional visualizations to incorporate as more factors are entered. Should we include comparative charts, risk assessments, or a recovery progress simulation? These are questions that we are answering as we implement our ideas on the website.