# Virtual Human Body Simulator - Project Summary

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## Summary

"VHBS" or the Virtual Human Body Simulator is an accurate simulation of the human body. It is designed to provide an artificial human body for the user to test, practice, and research on. The product is designed to accurately simulate the human body to the cellular level. Not only does the product simulate the human body, but it can also act as a surgery simulation and educational platform. We offer a variety of ways for the user to use this simulation as they would on a real human body.

## Functional Requirements

Some of the major functional requirements of the VHBS are:

- The product shall contain up-to-date medical information in order to provide the most accurate medical simulation possible
- The product will allow a multi-layered view of the human body to serve as a detailed information source for users
- The product shall accurately simulate the human body's reaction to certain drug dosages to educate users on how drugs impact the human body
- The product shall accurately simulate the human body's reaction to surgeries and surgical operations performed on it to allow users to practice surgical methods on the VHBS

## Non-Functional Requirements

**Usability:** The "VHBS" is mainly for medical professionals such as doctors, surgeons, and researchers, but can also be for aspiring medical students and hobbyists.

**Performance:** During a simulation such as a surgery or human body simulation, performance times should be the quickest. Response time should take at most 2 seconds for the product to respond to a given action. This is to provide the user with the most realistic experience possible. When it comes to the educational platform side of the product, we expect a max response time of 5 seconds to grab data from the server side database.

**Reliability:** The database that we are using to store the vast amounts of medical data should be up and running at all times. Maintenance should be done in a way that will not affect the user experience, while also indicating to the user that changes are being done in the event the user is using this product while the database is being changed.

**Supportability:** The product will provide users with the ability to get support help in the event that issues occur. All versions should be compatible with all versions of Windows, but preferences will be on the latest Windows version.

## Test Plans

The testing for VHBS will be carried out as individual features of the product are rolled out. Developers should perform unit testing for their code and generate project reports as they perform these tests. Once a feature being coded has been reviewed, integration testing is the next step. New features will also be tested with previous features to ensure compatibility. Acceptance tests will also be included, and will be carried out by a group of test users supervised by the developer team and the testing team.

## Class Diagram

The entire software can be summarized with the class diagram below. As you can see in the diagram, our software is centered on the user. Users can interact with the main menu interface to run simulations.