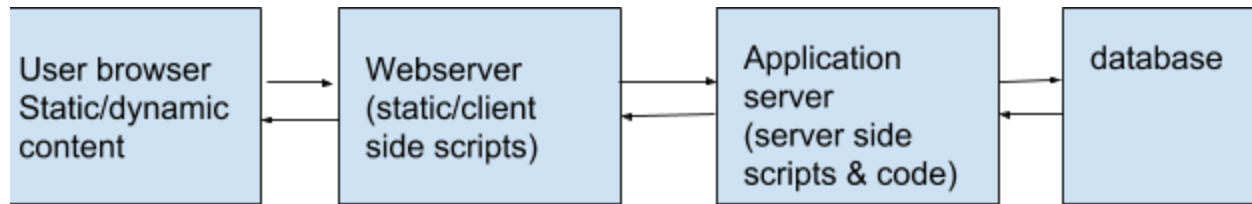Three tier software architecture

The software architecture that was decided on is the three-tier web based architecture. This was decided to be the most suitable as it includes presentation, application and data tiers. N-tier was considered, but due to not using any 3rd party technologies it was not necessary.

The presentation layer is the users view of the application. This will be achieved through a combination of HTML, Javascript, images and CSS. It will consist of both static and dynamic content which is able to be seen on a web browser. This tier needs to communicate with the other tiers in order to create the dynamic content. Users such as students and teachers will interact with this layer only. For example students will be able to visit a webpage to book their lessons and can select their requirements from a range of options.

The application layer contains the business logic of the application. It performs the processes and logical decision making that are behind the presentation layer, such as pulling data from the database and manipulating it to meet the users request. For the above example, the application layer will generate a query using the students requirements as additional conditions to meet. This layer also sends the gathered information back to the presentation layer. Initially the application layer was ASP.NET, however it was going to have compatibility issues with the data layer so Django was chosen instead. It was easier to set up and was the recommended application layer for this project.

The data layer consists of both the data itself and the management of the information that is in the database. In the booking lessons example, a query will search for the available times the application layer has specified and then send the information back to the application layer for processing. The database chosen was MySQL server as it was the recommended database for this project and meets industry standard. Others were looked into, however they didn't meet the requirements or were unfamiliar to the developers.