1 Technologies

For each of the following sections, all technologies we considered are listed.

1.1 Programming Languages

1.1.1 Java

Java is a general purpose, high-level programming language developed by Sun Microsystems. It is concurrent, class based and object-oriented. It was specifically designed to have as few dependencies as possible.

- Advantages:
  - Easy to use
  - Syntax is derived from C and C++
  - Comprehensive documentation
- Disadvantages:
  - Memory Inefficient

1.1.2 JavaScript

JavaScript is a high-level programming language that is, alongside HTML and CSS, one of the three essential technologies that allow content production for the World Wide Web.

- Advantages:
  - Because JavaScript is client-side, there is no delay by having to wait for a server response
  - Easy to learn and implement
- Disadvantages:
  - Security, the code being executed on the client-side is susceptible to malicious exploitation

1.1.3 Python

Python is a high-level programming language that emphasizes code readability.

- Advantages:
  - Efficiency, Python allows a programmer to solve the same problem in fewer lines of code than in other languages such as Java

  - Easy to read

- Disadvantages:
  - Syntax differs from conventional languages such as Java or C++, such as the omission of the semicolon
  - Indentation dictates blocks of code, a single wrong indentation will produce undesired or unexpected results from your code

1.1.4 PHP

PHP (PHP: Hypertext Preprocessor) is a server-side scripting language designed for web development.

- Advantages:
  - Works well with databases
  - Popular, most problems encountered have already been solved by other developers
- Disadvantages:
  - ?

1.1.5 C

- Advantages:
  - Fast run-time performance
- Disadvantages:
  - Low-level language, not ideal for applications or web development

1.1.6 C++

- Advantages:
  - Powerful language
  -
- Disadvantages:
  - No garbage collection, memory management has to be implemented by the programmer
  - Complex language

1.1.7 HTML

HTML (HyperText Markup Language) is the standard markup language to create web pages. It dictates the content of a web page. Alongside JavaScript and CSS, it is one of the three essential technologies that allow content production for the World Wide Web.

- Advantages:
  - Standardized, it is the standard markup language to create web pages
  - Easy to learn
- Disadvantages:
  - Different web browsers may render the page differently
  - Bland, it has limited styling capability.

1.2 Frameworks

1.3 Ajax

AJAX (Asynchronous Javascript and XML) is a group of technologies used to create asynchronous web applications. It is used to change the content of a web page dynamically without having to reload the entire web page

1.4 AngularJS

Described in section **??**

1.5 Bootstrap

Described in section **??**

1.6 Django

Described in detail in section **??**

1.7 Libraries

1.7.1 jQuery

jQuery is a cross-platform JavaScript library designed to simplify client-side scripting. It is the most popular JavaScript library in use today

1.8 Protocols

All protocols listed below were discussed in section **??**

- LDAP (Lightweight Directory Access Protocol)
- HTTPS
- HTTP
- SMTP

1.9 Database Systems

The System will utilize a relational database and will use PostgreSQL to handle queries.

1.10 Operating Systems

The System will be created to primarily work on Linux as the entire Computer Department is running on Linux. The System will however be compatible with other operating systems such as Windows, Apple OS.