**Chapter 2**

**Survey of Technologies**

**2.1 Available Technologies**

With the growth of web development, various technologies are available to build powerful and interactive systems. For this OTT project, we need tools that support video streaming, secure file sharing, and user management. The chosen technologies help us create a smooth, responsive, and secure user experience.

We are using technologies like Flash (for frontend), Python (for backend), MySQL (for the database), and Firebase Storage (for file handling). Deployment is handled through Vercel and Docker to ensure reliability and scalability.

**2.2 List of Technologies**

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|  | **HTML (HyperText Markup Language)**  Used for structuring web pages. It allows the arrangement of content like text, images, and videos in a browser-friendly format. |
|  | **CSS (Cascading Style Sheets)**  Helps in designing and styling the web pages. CSS is used to add layouts, colors, animations, and fonts for a visually appealing interface. |
|  | **JavaScript**  A scripting language used to create dynamic and interactive features on the client side like menus, buttons, sliders, and form validations. |
|  | **Flash**  Used for creating rich multimedia experiences. It can be used to build interactive UI elements or embed video players in the frontend. |
|  | **Python**  The main backend language used in this project. Python helps build the server-side logic such as user authentication, media management, and handling backend APIs. |
|  | **MySQL**  A relational database used to store structured information such as user data, video metadata, and admin logs. It supports SQL queries for quick and reliable access. |
|  | **Firebase Storage**  A cloud-based storage solution used to store and retrieve uploaded media files securely. It supports fast access, file hosting, and integrates well with web applications. |
|  | **GitHub**  Used for version control and collaborative development. It allows multiple developers to work together, manage source code, and track changes. |
|  | **Vercel**  A deployment platform ideal for frontend projects. It offers fast and reliable hosting with continuous deployment features. |
|  | **Docker**  Used to containerize the application, ensuring consistency across development, testing, and deployment environments. |

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| **Technology** | **Features** | **Advantages** | **Disadvantages** |
| **Flask** | * Multimedia support * Animations | * Rich UI/UX * Video player support | * Not supported in modern browsers * Outdated |
| **Python** | * High-level language * Supports frameworks | * Easy to learn * Powerful backend logic | * Slower than compiled languages |
| **MySQL** | * Relational DBMS * Structured queries | * Fast * Reliable * Supports joins | * Limited for unstructured * Real-time data |
| **Firebase storage** | * Cloud file storage * Secure access | * Easy to use * Fast uploads * Scalable | * Limited free usage * Requires internet connection |
| **JavaScript** | * Client-side scripting | * Enhances user interaction | * May slow down with large DOM |
| **Docker** | * Containerization | * Consistent across platforms * Easy testing | * Learning curve for beginners |
| **Vercel** | * Frontend deployment | * Fast hosting * Auto updates from GitHub | * Best for frontend only |

**Table 2.1 Comparative Study**

**2.4 Selected Technologies**

Based on the project requirements, the following technologies were selected:

* **Flash**
* **Python**
* **MySQL**

**1. Flash (Frontend)**

Flash was chosen for embedding media and building interactive UI. It supports animations and video players that can be used in streaming interfaces. Though modern alternatives exist, Flash can still demonstrate multimedia handling for college-level projects.

**2. Python (Backend)**

Python is used for server-side programming. It helps handle user authentication, video management, and API interactions efficiently. Python is beginner-friendly and has strong library support for web and file operations.

**3. MySQL (Database)**

MySQL is used to store user profiles, content metadata, file permissions, and system logs. It is widely supported, reliable, and integrates smoothly with Python backends.