### <Project Name>

Architecture Notebook

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# Purpose

# The purpose of an Architecture Design is to allow the stakeholders to understand the overall design of the whole system in relation to the functional and non-functional requirements set out in the vision. To achieve a robust and flexible system, special emphasis will be given to producing an Architecture which builds upon the non-functional requirements of availability, reliability, usability and performance.

# Architectural goals and philosophy

The main architectural goal is to implement a system that will be robust, and flexible. An architectural design is to be established that requires minimal maintenance but is also able to adapt to the additional requirements in the future. Since our project is a web-based e-commerce system and allows users to perform a variety of tasks, a layered/modular architecture is to be used. Security is to be one of the key issues that needs to be handled well as personal information such as credit card numbers and email id’s will be stored within the system. For this reason, the website will be hosted on a web-server established over our own personal device using a Linux operating system, which would ensure more control and security over the website. A modular and layered architecture would allow the functionalities to be independent of one another and will make it easier for the system to be implemented, tested and managed.

# Assumptions and dependencies

Assumptions include:

* Not all users feel comfortable exposing their credit card details over websites and wish to use more secure payment services. For this reason, our website is going to implement third party payment services such as PayPal and bitcoin to allow users to make payments without giving away their credit card details.
* Using MySQL database server will provide higher quality database service and more security. This is critical as website needs a secure and well tested database to be running at all times. Also, provides a friendlier workbench interface to allow our team of young developers to work effectively.
* Using Apache II server on Linux operating system should provide greater security.

Dependencies:

* Any changes to the user requirements may require changes to be made within the database.

# Architecturally significant requirements

Most of the significant requirements have been discussed in detail within the System Wide Requirements section. For a better understanding refer to the NFRs document above.

Some basic significant requirements include:

* The website should be quick and responsive and not take longer than 5 seconds to respond the users command.
* The users should be able to use the website on all devices and operating systems without any errors.
* A user-friendly interface is to be provided to allow users to navigate the website effectively and efficiently.

# Decisions, constraints, and justifications

Some key decisions along with their justifications provided below:

* Using MySQL as the default database server. MySQL is an industry certified database application which is a lot easier to install and setup. Providing a user-friendly workbench for even beginners to use, it allows our developers to be more effective. MySQL also provides better security as compared to other database applications.
* Third-party payment services: This is to make payments quicker and more secure for the users. May users have already established PayPal accounts and feel comfortable using such services over providing their credit card details to newer websites.
* Hosting the web-server over our own personal computer: For better security and easier maintenance we have decided to use Apache II server running on Linux Operating System. This should also give our developers and admin more authority over the server and website.
* Building website from scratch rather than using a third-party website building software: We want to do everything from front-end programming to back-end programming on our own so that at the end of project, our development team have learned newer skills and improved on their current skills.

**7. Architectural Framework and Design:**

# The following diagram represent the way the system architecture is to be established and deployed. It includes a modular architectural model along with a deployment diagram incorporated into one that describes the key components of the overall system.

It also shows the **3-tier architecture** that is to be implemented for this Project.

