**Week 3 Assignment:** **Software Architecture Patterns**

Shaun Hoadley

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Professor Amr Elchouemi

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**Software Architecture Patterns**

**Select one of the architecture patterns explained in Chapter 7 of the course text. State the name of the selected pattern in your paper.**

Software architecture patterns are used as solutions to already established and understood, recurring software problems. Software architecture patterns provide high-level structure and behavior that allow one to simplify the design process by leveraging existing solutions to a given problem. There are several architecture patterns that are covered by *Software architect’s handbook: Become a successful software architect by implementing effective architecture concepts* (Ingeno, 2018), listed as follows:

* Layered Architecture
* Event-Driven Architecture (EDA)
* Model-View-Controller (MVC)
* Model-View-Presenter (MVP)
* Command Query Responsibility Segregation (CQRS)
* Service-Oriented Architecture (SOA)

This paper will cover the Model-View-Controller, or MVC, software architecture pattern.

View

Model

Controller

The Model-View-Controller pattern was invented by Trygve Reenskaug in 1978/1979 and was oringially called Thing Model View Editor (Svirca, 2020). The Model-View-Controller pattern divides a software application into three logical parts, the model, the view, and the controller. The model is the state and data handling element, responsible for processing, managing, and storing data. Because the model is an independent element, it can be tested independently and reused with different interfaces. The view element is responsible for presenting the data from the model in a meaningful way, but does not interact directly with the model. The responsibility of the controller element is to handle the interconnection of the model and view elements. The controller provides a buffer, of sorts, that directs and may aid in securing the data flow.

**Select a software application that uses the pattern you selected. Explain how that application uses your selected pattern. Explain why it is the appropriate pattern for the application.**

E-commerce websites commonly implement the Model-View-Controller pattern. The model element being the backend side of the site, managing the databases and data processing for it. The view element of an e-commerce website is the frontend side providing the users the layout of the site and the means to interact with the site. The controller element is the interfaces and APIs that tell the model what to process and the view what to display.

**Identify another pattern that could be appropriate for the same software application. Discuss how that pattern could be used to implement the application. Compare and contrast the two approaches of pattern use (the existing one and your suggested one).**

Another software architecture pattern that could be used in an e-commerce website is the Model-View-Presenter pattern. The Model-View-Presenter pattern is essentially a modified version of the Model-View-Controller pattern. Fuctionally, the Model-View-Presenter operates the same way as the Model-View-Controller, with the most significant difference being the Presenter element typically only handles one single view element; Whereas the Controller element in the Model-View-Controller may interact with any number of view elements.

**References**

Ingeno, J. (2018). *Software architect’s handbook: Become a successful software architect by implementing effective architecture concepts*. Retrieved from https://www.vitalsource.com/

Svirca, Z. (May 29, 2020). Everything you need to know about MVC architecture: A general explanation of how MVC works. *Towards Data Science.* Retrieved from https://towardsdatascience.com/everything-you-need-to-know-about-mvc-architecture-3c827930b4c1