

# Initial Project Plan

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### Project Aim

Poorly designed software eventually increases the complexity of the software due to which adding new features and maintaining the software becomes time and cost consuming. The prior aim of this research is to direct developers towards right path for designing software combining different software architectures with Domain-Driven Design principles, so that developers can avoid maximum dependencies between components when the system grows bigger.

### Objectives

Following objectives will be performed to meet the aim of this research:

- 1) Deep research on Domain Driven Design.
- 2) Deep research on other software architectures which can be used with the principles of DDD.
- 3) Sample prototype design and minimal implementation of all these combinations, combinations maybe combination of DDD and event-sourcing.
- 4) Comparing one way with the other.
- 5) What will be the better approach according to the nature of the software?
- 6) Pros and Cons of each combination.
- 7) Note down the time, effort, and memory factor for each of these combinations and provide conclusion based on these factors.

### Project Specification

Project specification includes what must (Mo) be included in my research, what should be included (S), what could be researched further (Co) and what won't be included in my research (W).

#### Moscow rule:

- This research will be based on books and different articles published over the course of time. (Mo)
- Sample prototype product will be designed and implemented by combining different software architecture's with DDD principles. (Mo)
- Designed prototype can be directly used to solve the real-life problem. (W)
- Developers can directly implement the outcome of the research for designing their software. (S)
- This research will follow standard tested design patterns so that reader gains further knowledge on how objects can work with better co-ordination, consuming low memory and time. (Co)
- Reviews from different developers who has already designed software by combining DDD's principle. (S)
- Person reading this research paper will have idea on which approach will be better for their software. (Mo)

Functional and non-functional requirement listed above are the areas that my research is expected to cover. To accomplish all these requirements, initially my research will have brief introduction to Domain Driven Design. Gradually, we will proceed and learn how can we think about our business problem as DDD paradigms (Aggregates/Entity/ Value-objects etc.). Once we grab the concept for applying DDD paradigms to our business problem, then we will start to have abstract idea on applying other software architectures such as event sourcing, onion architecture, hexagonal architecture to DDD principles. We will analyze the process and surely discuss the outcome of these combinations to provide reader with broader idea on developing a software.

### Re-search and Evaluation

Re-search will be based on DDD books and articles related to software architectures, for example title of the research may be 'Domain Driven Design in enterprise java'. Extensive research should be done for this topic because designing a software for any kind of business doesn't have a predefined formula. We face different scenarios and problems according to the nature of the business. There is no perfect way for developing a software, every concept will have its highs and lows in comparison with other designing concept. So, clear vision of these architectural paradigms assists us in formulating a road map for developing a software. **We will be considered as 'Engineers' and not as 'technicians' because we will have the ability to design our software that best suites our business.** Re-search may span from google search to open-source code to articles based on designing concepts and to books that is written for specific software architecture.

Evaluation of these re-search can be done by following the demo software that we will design throughout this research. Conclusion with tested facts about the factors such as time, memory, complexity, and work force that each approach may require will be presented.

### Project Planning & Methodology

#### Preliminary literature review

Over the course of time, various articles, findings, blogs, and books have been written for different software design techniques. All these resources mainly focus on conceptual design for business problem but very few have recognized the need of combining software architectures and sharing the ideas. For example, books on implementing DDD, understanding DDD are written and modified by various authors but books and articles regarding possibilities, hurdles, and outcomes of combining DDD paradigms with other approaches is rarely found. What is missing in these papers is a proper guide for a beginner to write clean code using the knowledge from different software design paradigms. 'Implementing DDD' a book by Vaughn Vernon gives us in-depth knowledge on using DDD paradigms, such kind of books will be the reference for my findings. 'Cosmic python' which is hosted over the internet (GitHub), gives us the in-depth knowledge of software design that combines DDD with onion architecture, but its very complex for a beginner to grab the actual concept. My focus on this research paper will be on providing

clear vision for a beginner so that he/she can decide a proper architecture for developing their software.

### Methodology

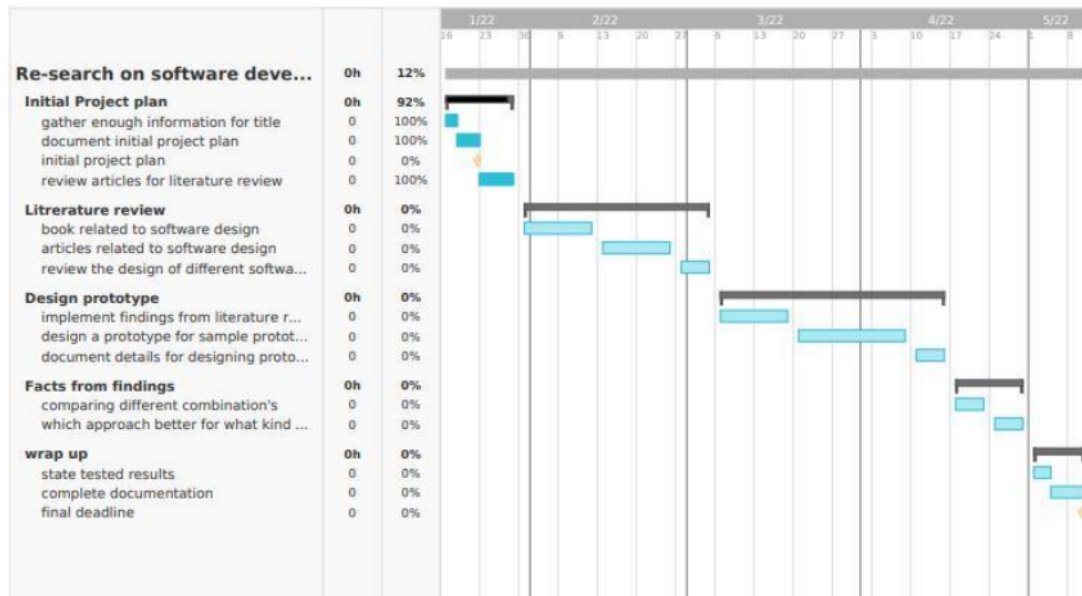
Primary method for this research will be literature review i.e., **qualitative analysis**. Focus of this research will be on different software designing techniques. It will elaborate different combination of architectures, to achieve that we will collect **qualitative data** from different sources. I will learn what developers have to say about different approaches, how did they find one approach better than the other. Lots and lots of articles and books are written for this topic so my research isn't answering questions regarding the paradigms of the architectures, I am not defining any of those topics, but my research will act as a guideline for developers who are confused and little less experienced in designing software. Gathering ideas from these articles, books videos etc. will give me vast idea on software development which I can use to complete my study.

To validate the facts discovered via this research, we must follow the prototype that is designed and implemented along with the research. I will learn and apply the findings in my prototype. The one who follows this research will get insights on different ways on developing software's.

I will use any kind of data that is relevant to my topic, suppose I may use my senior's research papers, I may review architecture of many software's, I will search of as many articles I can to gather enough information for my topic.

## Initial Project Plan

### Gantt chart



## Resources

S.N	Name	Purpose
1	Eclipse IDE	Programming interface where we write all our code throughout this research.
2	Articles	Either e-articles or sheet articles, these articles are very important for my research as we can gain ideas on what other developer have to say about the topic that I am going to research
3	Books	Either e-book or physical copy, this can help me understand the architectures more properly as this contains enough examples.
4	Re-search papers from seniors	Senior's re-search paper will be reference for doing my own.
5	Java	I will use java programming language for my re-search
6	Spring framework	This framework works well when implementing DDD theorem in a software.
7	Jakarta EE	Platform that contains required API and components for building java business application

## Human Resource

I am working under the direction of my module leader **Mr. Rohit Raj Panday** because no supervisor is assigned to me as of now.

## Bibliography

- McCombes, S. (2019). *How to Write Research Methodology in Four Steps | with Examples*. [online] Scribbr. Available at: <https://www.scribbr.com/dissertation/methodology/>.
- The University of Edinburgh (2019). *Literature Review*. [online] The University of Edinburgh. Available at: <https://www.ed.ac.uk/institute-academic-development/study-hub/learning-resources/literature-review>.



# Initial Project Plan

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## PRIMARY SOURCES

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