Efficient Product Management For Developing Robust Healthcare Softwares

Karkinos Healthcare Pvt. Ltd.

Team Karkinos

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IIHMR Delhi

Screenshot of Approval

Certificate of Approval

The Summer Internship Project titled **"Efficient product management for developing robust healthcare softwares"** at **"Karkinos Healthcare Pvt. Ltd."** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the report only for the purpose it is submitted.

Ms. Divya Agarwal
Associate Dean- Admissions & Accreditation's
IIHMR- Delhi

Objectives

Primary Objective

- To understand the basics of product management in developing healthcare applications.

Secondary Objective

- To undersatnd efficient adaptable strategies to meet the needs of end user.

Methodology

- **Study design-** Narrative retrospective review
- **Setting-** Karkinos Healthcare
- **Study Tool-** PubMed search and google scholar search of relevant open access articles, Public blogs and unpublished articles by industry experts
- **Operational Definitions/Keywords-** Product management, Roadmap, software lifecycle, Agile, UI/UX
- **Duration of study-** 2 months

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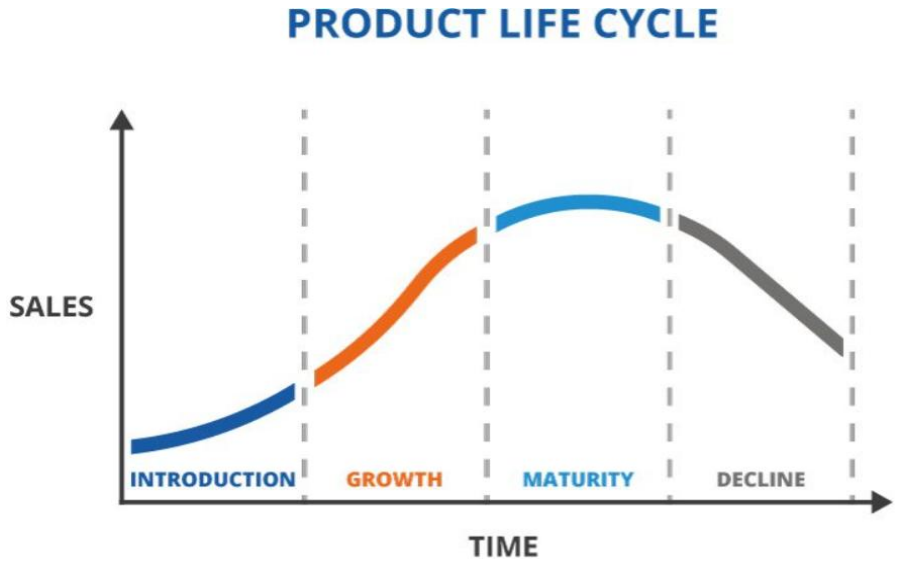
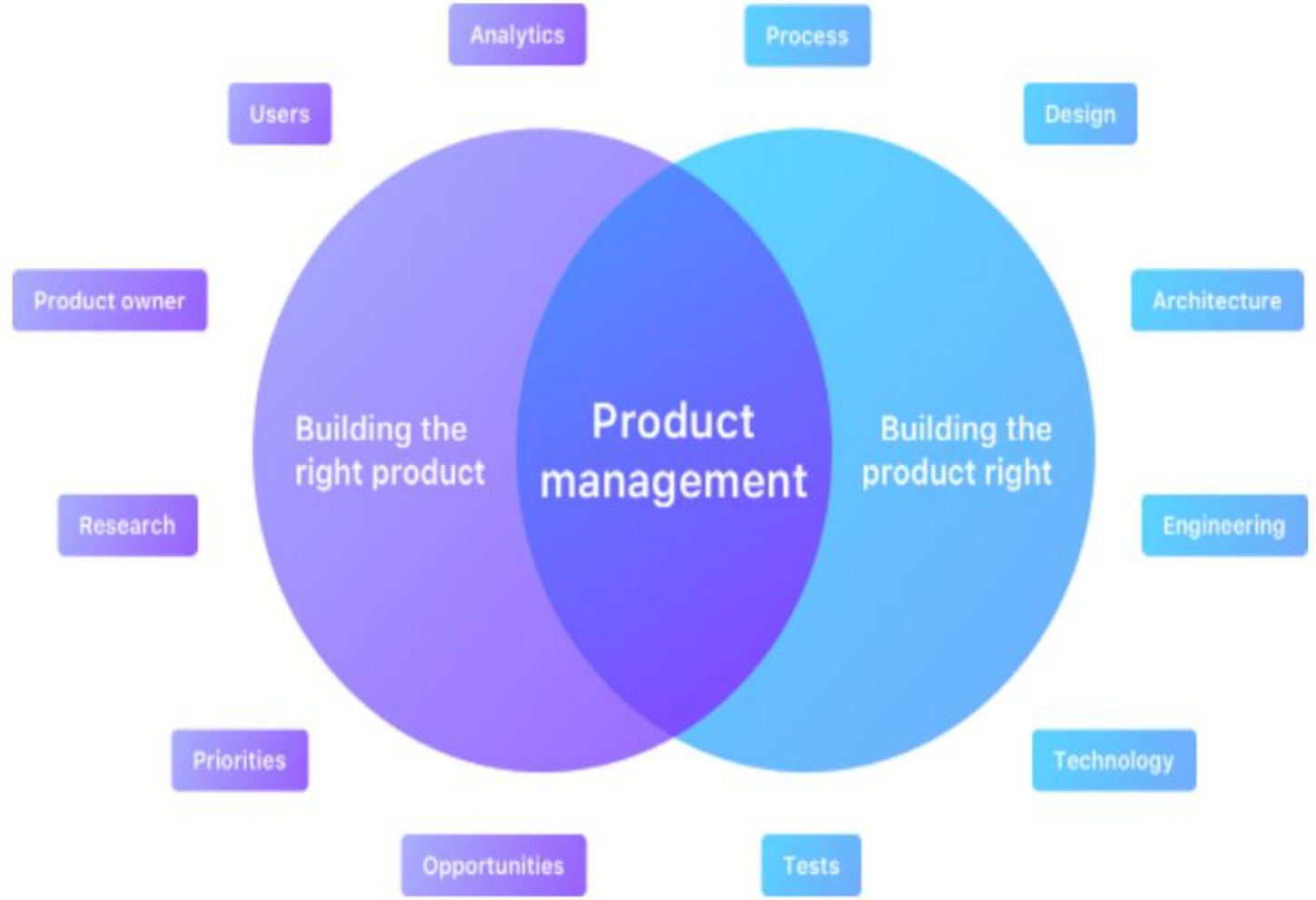
Introduction

Product management: is an organizational function that guides every step of a product's lifecycle - from development to positioning and pricing - by focusing on the product and its customers first and foremost.





What is a software product

Software is a component/subset of the Higher order thing known as Product

Software products can be a combination of systems, solutions, materials and services delivered.

Classification of softwares in general:

- System Softwares- Operating Systems, System support and System development softwares
- Application Softwares- General and Specific purpose
- Engineering/Scientific Softwares- for drawing, modeling, data interpretaion, decision making
- Embedded Softwares- embedded into hardware as a part of larger systems to control its various functions
- Web applications- type of application accessed over a network
- Artificial Intelligence Softwares

Healthcare softwares: Standalone softwares- Appointment softwares, Health wearables using IOT, health chat bots, telemedicine, e prescription and online medication and health product delivery ; EHRs/EMRs encompassing all the standalone features with a vast array of more features etc.

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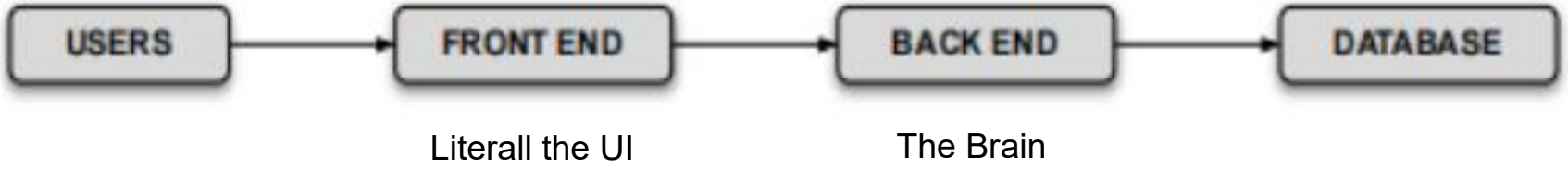
Some Key Concepts to be understood:



- Product requirement Documents (PRDs)
- Wireframes
- User Experience (UX)
- User Interface (UI)
- Tech/Solutions Stack (Frontend and Backend)
- Database
- Minimum Viable Product (MVP)
- Interoperability
- Application Programming Interface (API)/Plugins

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Software Development Lifecycle (SDLC)

Crucial for Product Manager and team to understand the basics of SDLC

Software lifecycle phases:

- Requirements analysis
- Software Design
- Software Development
- Testing
- Deployment
- Maintenance

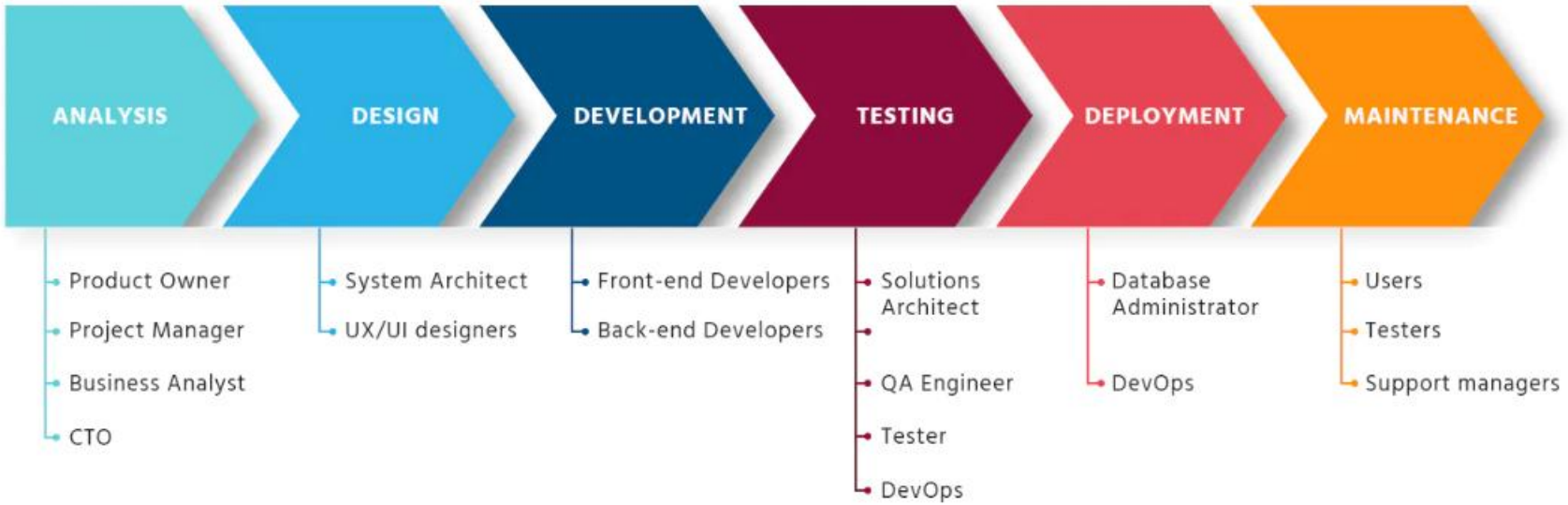

Figure 1.Stages of Software Development Lifecycle (SDLC) governed by various members Healthcare IT Team
Image Source: https://brocoders.com/blog/agile-software-development-life-cycle/

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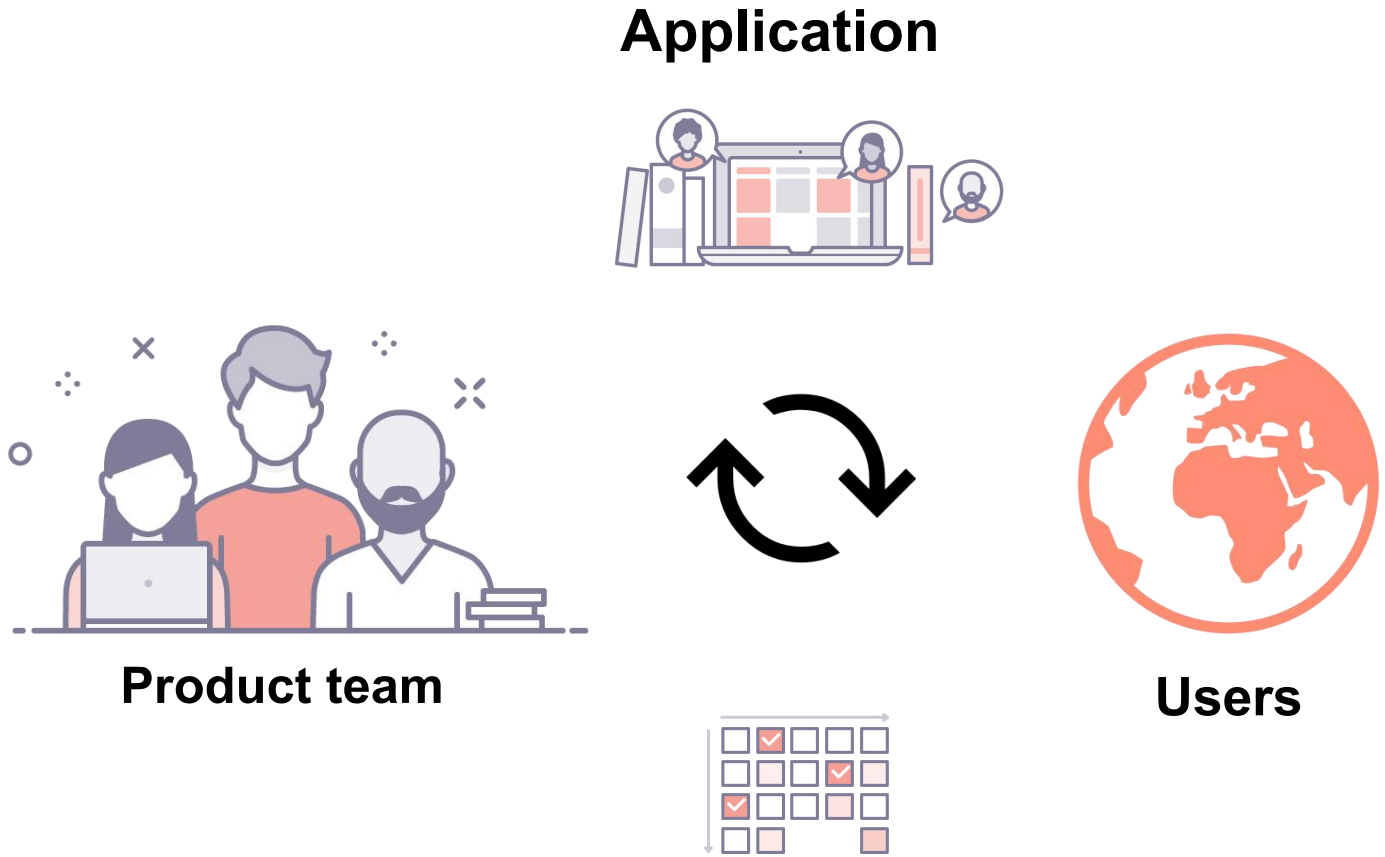

Figure 2: Lifecycle of software is a never ending phase with constant maintainence, quality control and assurance

Software Lifecycle management models

SDLC Management is a process that aims to develop software with the lowest cost, highest quality, and in the shortest time.

Management Models:

- Waterfall Model
- V Model
- Iterative Development Models- Rational Unified Process (RUP), Agile, Evolutionary Prototyping, Spiral

Healthcare field is ever evolving, hence iterative models are best when starting initial development of healthcare softwares

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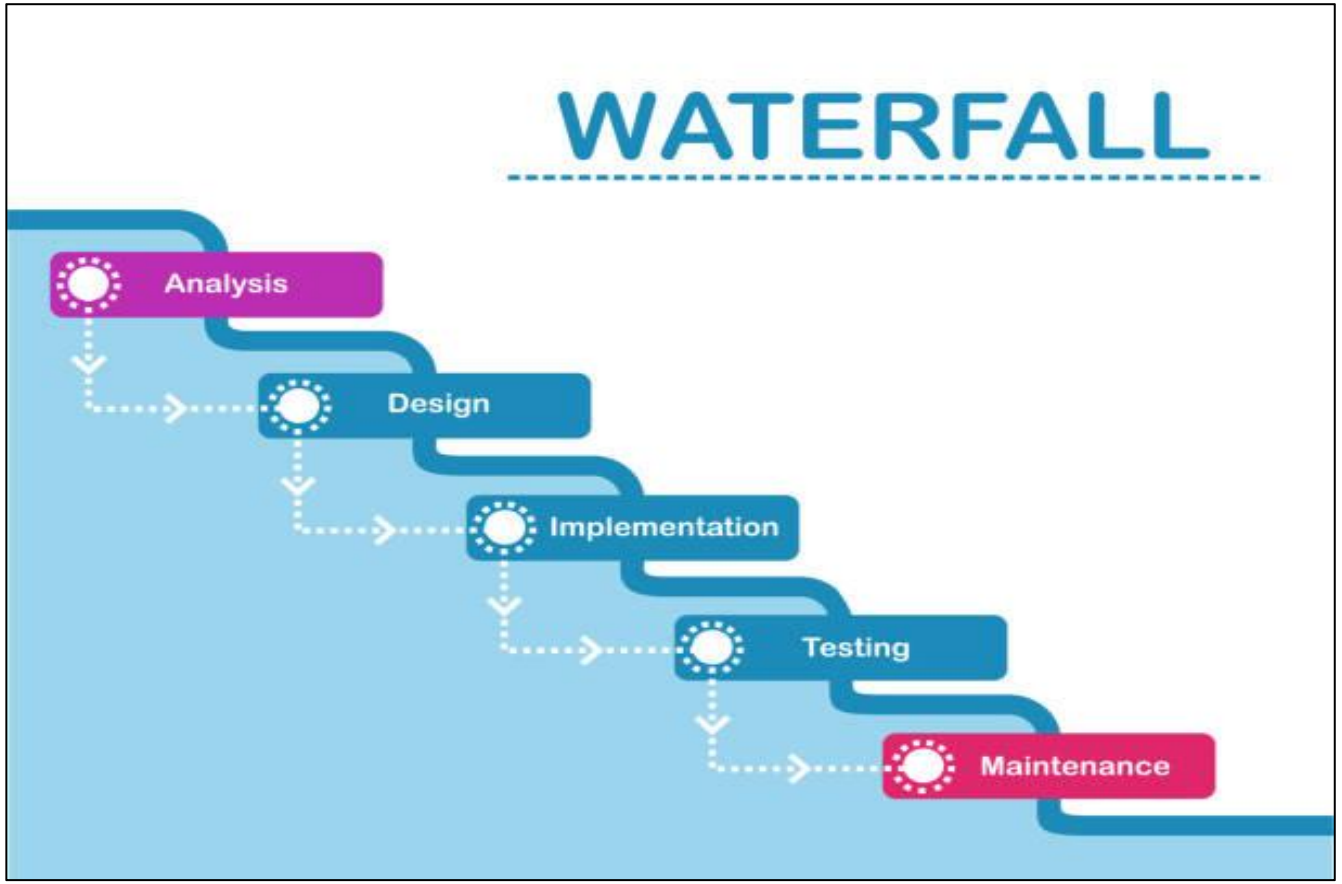


Figure 3. Waterfall Model
Creator: Sylfide | Credit: Getty Images/iStockphoto

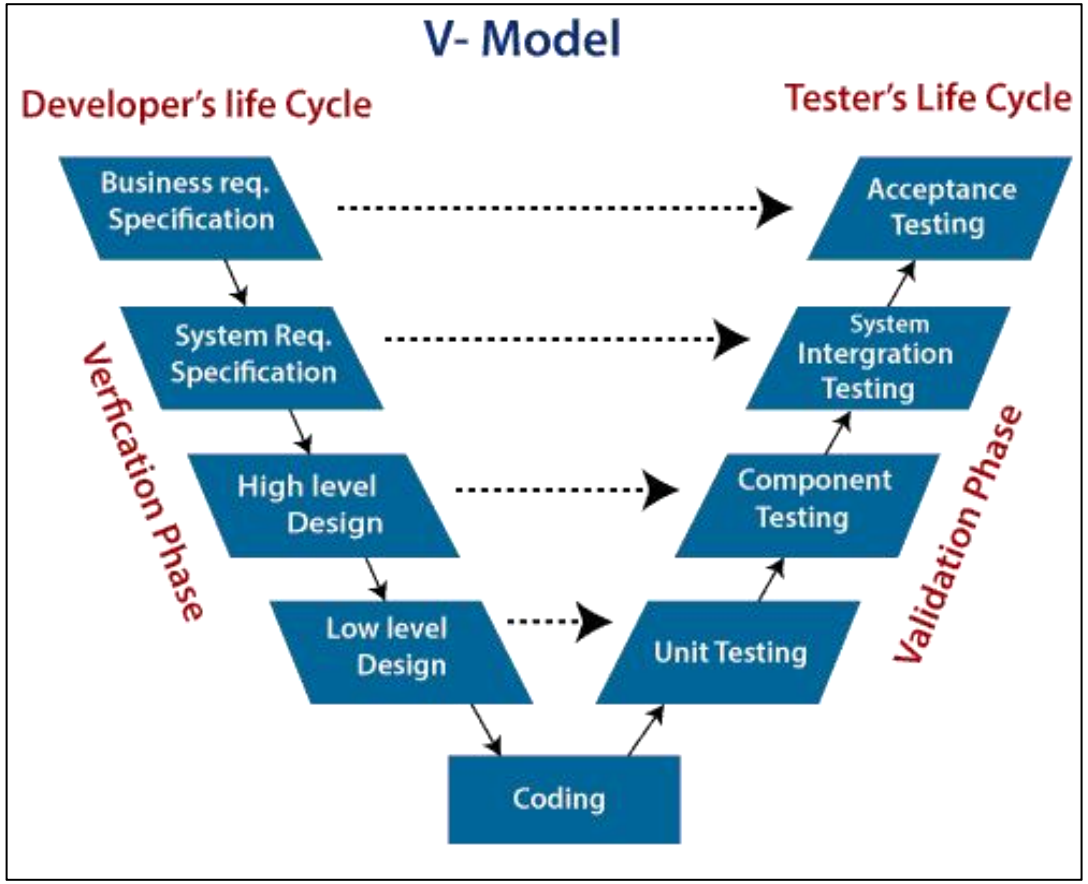


Figure 4. V shaped Model
Source: https://www.javatpoint.com/software-engineering-v-model

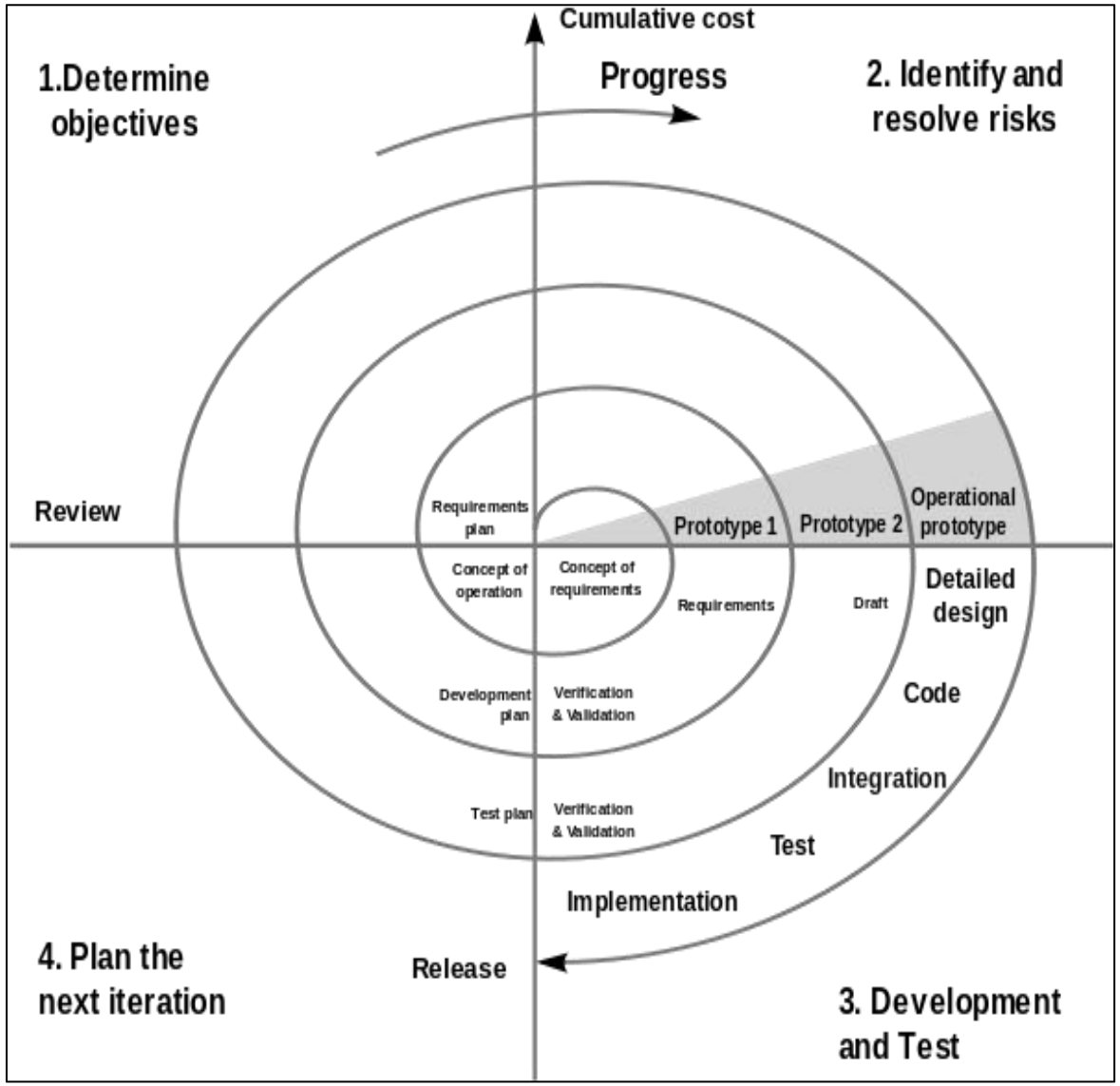


Figure 5. Spiral Model
Source: https://www.pngkey.com/detail/u2q8q8o0w7e6a9w7_spiral-model/

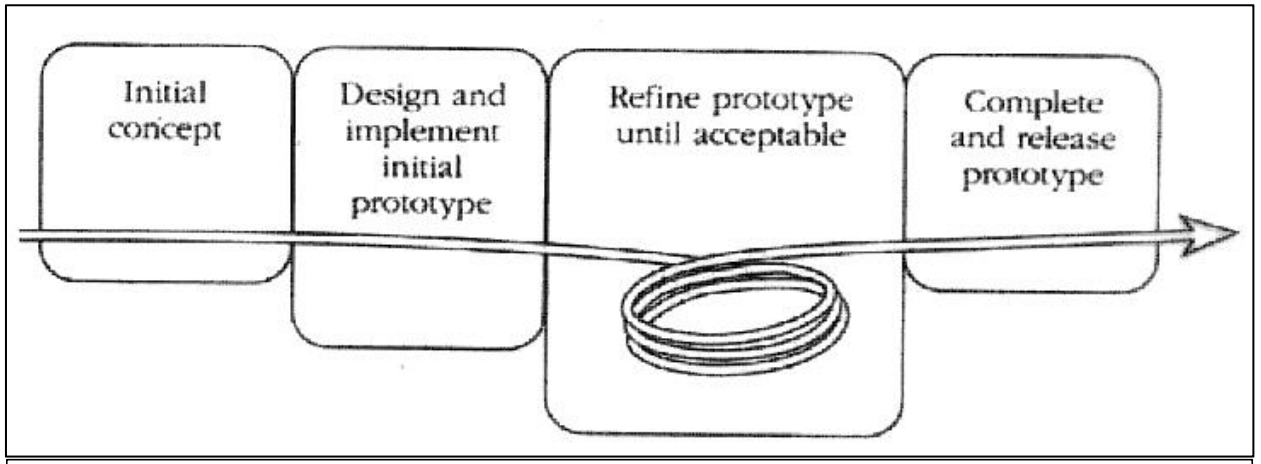


Figure 6. Evolutionary Prototyping
Source: https://hci.cs.siue.edu/NSF/Files/Semester/Week13-1/PPT-Text/Slide12.html

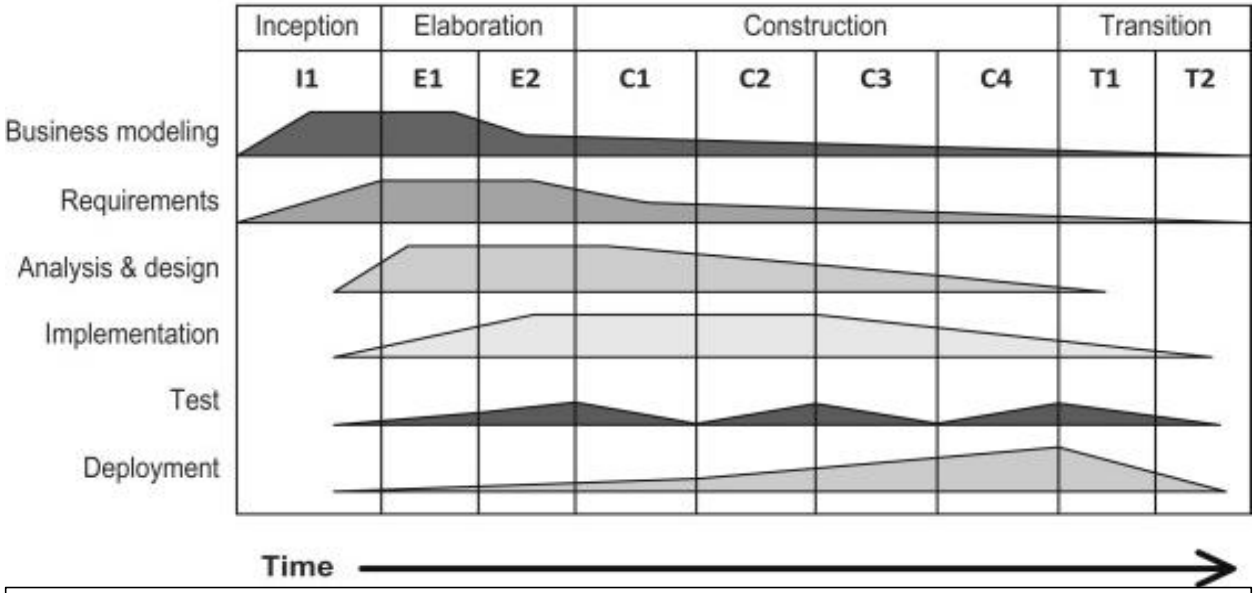


Figure 7. Rational Unified Process (RUP)
Source: https://www.sciencedirect.com/topics/computer-science/rational-unified-process

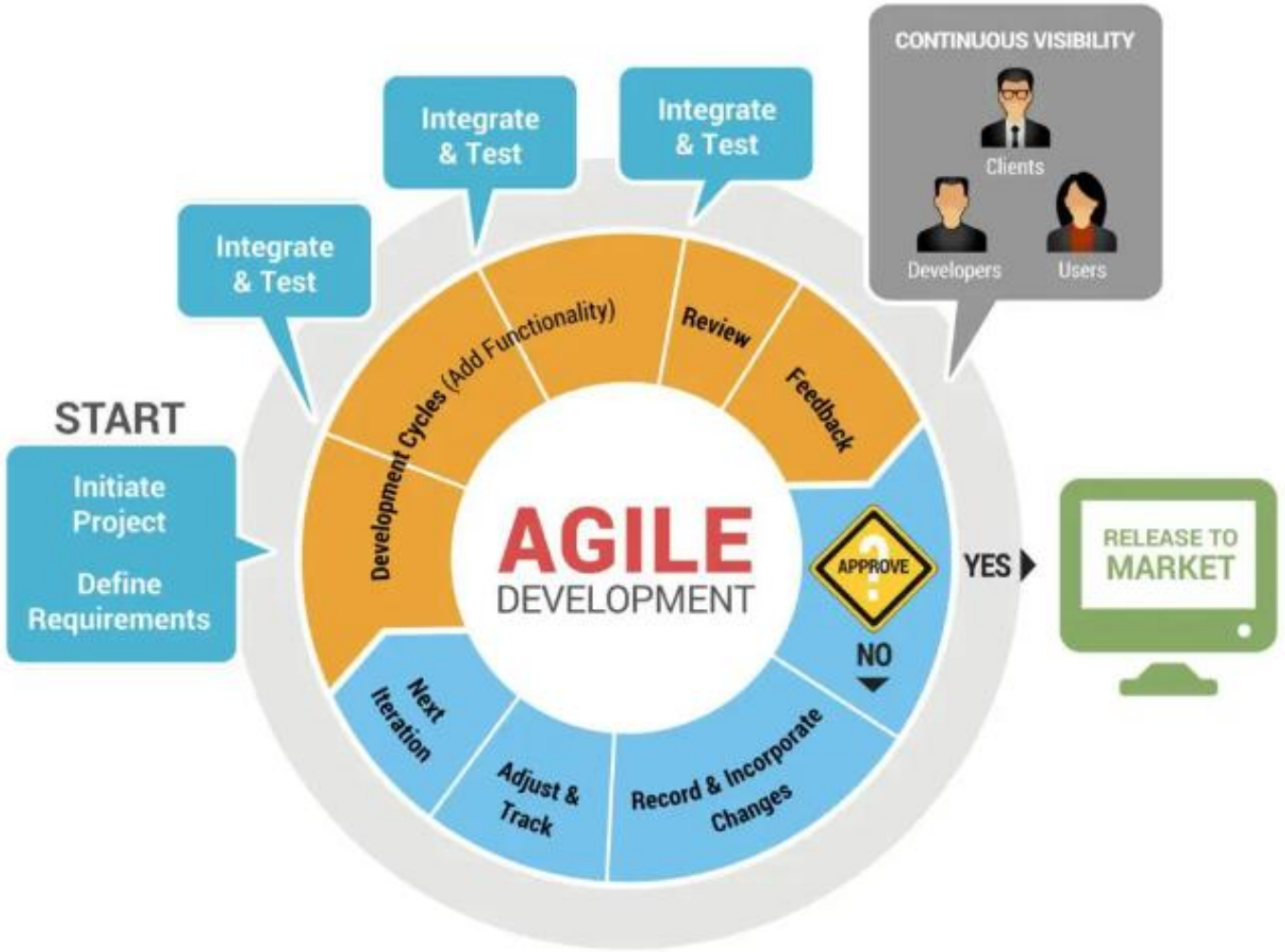


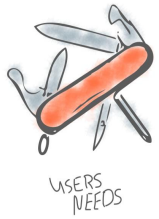
Figure 8: Agile Development Model
Source: https://cyberhoot.com/cybrary/agile-method/

Some Classic Mistakes

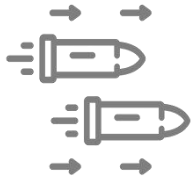
People related

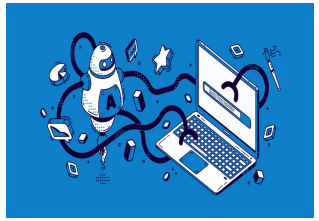
Process related

Product Related



Technology Related





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Limitations of Study

- Reliance on words of experts
- Curated vast amounts of scattered data

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Conclusion

- Healthcare field is fast paced and ever evolving
- Understand the basics of SDLC and management models
- Fully own the vision and roadmap of healthcare software product areas assigned
- Ability to push back on engineering estimates if project is under or over-scoped
- Apply good software engineering and product management principles
- Apply critical thinking to adapt to the healthcare domain and demands
- Team collaboration
- Apply good management priciples

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POSTER TEAM KARKINOS
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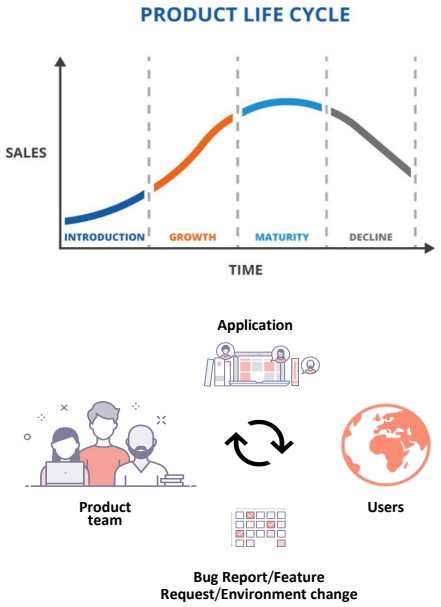

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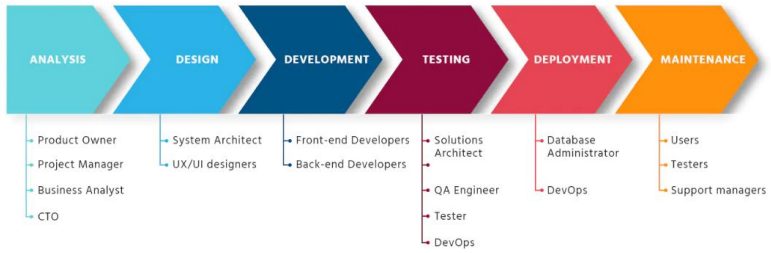
SOFTWARE DEVELOPMENT LIFECYCLE (SDLC)



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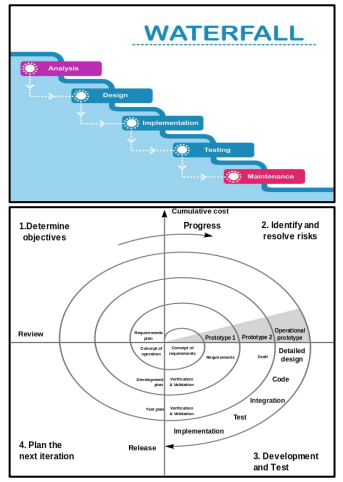

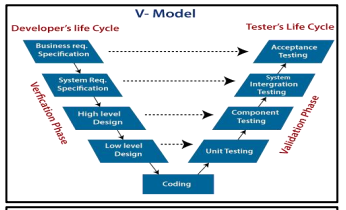

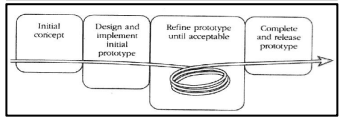

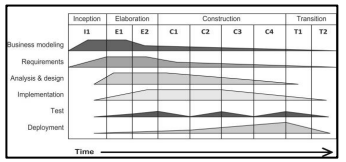

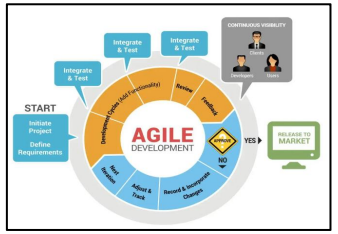

CONCLUSION

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Ability to push back on engineering estimates if project is under or over-scoped

Apply good software engineering and product management principles

Apply critical thinking to adapt to the healthcare domain and demands

Team collaboration

Apply good management priciples

Internship Experiences

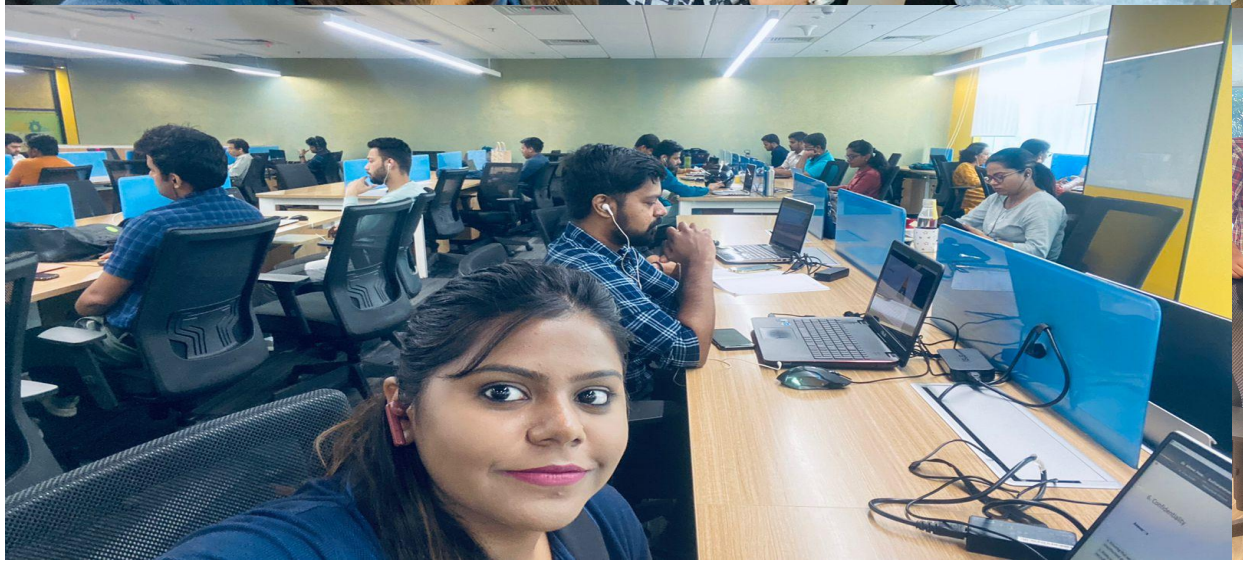
Skills and topics learnt:

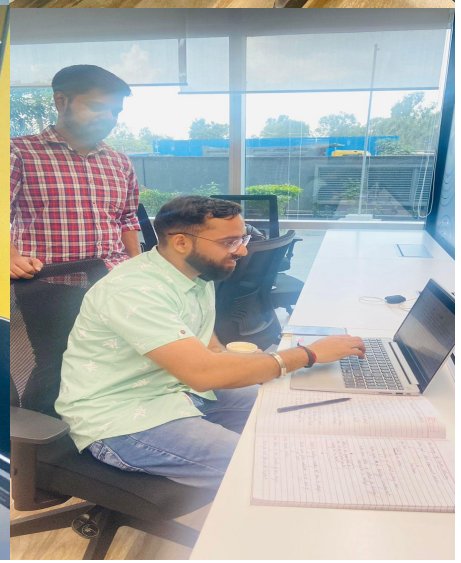
- Basics of software product management
- Drafted Product requirement documents (PRDs)
- Helped design low-high fidelity wireframes
- Drafted User stories and user journey for features to enable the design team to incorporate them and forward the feature additions to developer team
- Health dashboards
- Role of automation
- Backlog Prioritization

Suggestions Given to Organization

- Enhance team communication
- Keep revisiting the basics from time to time
- Backlogs value estimation and resolution methods suggested

Pictorial Journey





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Thank You