**Pune Vidyarthi Griha’s College of Engineering and Technology & G.K. Pate (Wani) Institute of Management, Pune- 411009.**

*(Affiliated to Savitribai Phule Pune University)*



A Project Based Learning II Report

On

**“Title of the Project”**

By

Student’s Name Seat Numbers

**1.**

**2.**

**3.**

**4.**

**5**

Under The Guidance of

**Prof. Anil M. Bhadgale**

**Department of Computer Engineering**

**Academic Year: - 2022-2023**

**Pune Vidyarthi Griha’s College of Engineering and Technology & G.K. Pate (Wani) Institute of Management, Pune- 411009.**

*(Affiliated to Savitribai Phule Pune University)*



### CERTIFICATE

This is to certify that the “Project Based Learning II” report entitled “**Title of the Project”,** submitted by,

**Students Name** **Exam** **Seat No.**

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is a record of bonafide work carried out by him/her, in the partial fulfillment of the Term-work of Second year in Computer Engineering of Savitribai Phule Pune University at Pune Vidyarthi Griha’s College of Engineering and Technology & G.K. Pate (Wani) Institute of Management, Pune under Savitribai Phule Pune University, Pune. This work is done during Semester II, Academic Year 2022-23.

**Date: -**

**Place: -** Pune

Prof.Anil M.Bhadgale

**(Project Based Learning Coordinator)**

**Acknowledgement**

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**(S.E.Computer Engineering)**

**Abstract**

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1. **Group ID –**
2. **Title of the Project –**

# Problem Statement –

* A problem statement is a clear description of the issue(s).
* It includes a vision, issue statement, and method used to solve the problem.
* Problem statement should deal with identifying the problem, Beginning the statement with ideal situation, Describing current gaps, Stating the consequences of the problem and Propose addressing the problem.

# Abstract –

# An abstract is a short summary of a longer work (such as a dissertation or research paper, or software system). The abstract concisely reports the aims and outcomes of research so that readers know exactly what the system is about. The abstract should contain problem statement and objectives, methods, results or arguments and conclusion.

# Technical Keywords -

Includes the words that describe about technology, science and engineering can be referred as technical words. All such words from the system can be treated as Technical words.

E,g. A.I, NLP,ML, Deep Leqrning,5G,WANetc

# Goal

# Goals are high-level statements that provide the overall context for what the project is trying to accomplish.

# Objectives –

# Objectives are concrete statements describing what the project is trying to achieve.

# lower level statements that describe the specific, tangible products and deliverables that the project will deliver.

# The objective should be written at a lower level, so that it can be evaluated at the conclusion of a project to see whether it was achieved or not.

# Objectives should not be vague.

# A well-worded objective will be Specific, Measurable, Attainable/Achievable, Realistic and Time-bound (SMART).

1. **Requirement Gathering**

This step onwards the software development team works to carry on the project. The team holds discussions with various stakeholders from problem domain and tries to bring out as much information as possible on their requirements. The requirements are contemplated and segregated and well documented into functional requirements, nonfunctional requirement. The requirements are collected using a number of practices as given -

* studying the existing or obsolete system and software,
* conducting interviews of users and developers,
* referring to the database or
* collecting answers from the questionnaires.

1. **Functional Requirements:**
   1. Functional requirements define a function that a system or system element must be qualified to perform and must be documented in different forms. The functional requirements are describing the behavior of the system as it correlates to the system's functionality. The functionality description of each should be documented.
   2. Requirements, which are related to functional aspect of software fall into this category. They define functions and functionality within and from the software system.
2. **Non-functional Requirements:** This can be the necessities that specify the criteria that can be used to decide the operation instead of specific behaviors of the system.  
   Requirements, which are not related to functional aspect of software, fall into this category. They are implicit or expected characteristics of software, which users make assumption of.

* Non-functional requirements include -
* Security
* Logging
* Storage
* Configuration
* Performance
* Cost
* Interoperability
* Flexibility
* Disaster recovery
* Accessibility

[**https://www.tutorialspoint.com/software\_engineering/software\_requirements.htm**](https://www.tutorialspoint.com/software_engineering/software_requirements.htm)

# Problem statement feasibility assessment-

### Technical Feasibility - Technical feasibility evaluates the current technologies, which are needed to accomplish customer requirements within the time and budget.

### Operational Feasibility - Operational feasibility assesses the range in which the required software performs a series of levels to solve business problems and customer requirements.

### Economic Feasibility –

### Economic feasibility decides whether the necessary software can generate financial profits for an organization.

### Students are expected to calculate Software Project Estimation using LOC /FP Based approach and or COCOMO Model

# System requirements-

**Hardware requirements:**

* Processor:
* RAM:
* Other Hardware:

Etc.

**Software requirements:**

* + Operating System:
  + Language used :
  + Database :
  + Others Technology/Softwares:

# Literature Survey

# A literature Survey not only summarizes the knowledge of a particular area or field of study, it also evaluates what has been done, what still needs to be done and why all of this is important to the system.

# The IEEE/ACM/Springer etc. journal papers can be reviewed to study the recent trends and technology with respect to our proposed software system. We can include the papers titles and the abstract to highlight the current work related to the project

# Present work related to the project topic-

# Current market survey: Includes list of similar product available (if any) with their pros and cons.

# List the available products with their advantages and limitations.

# Proposed work of project topic-

# Include Methodology/ Proposed system block diagram /Architecture with the brief description of its flow and work process. We can make use of any software architecture to represent the software we are proposed to develop.

# Plan of Project Execution-

Includes the effort required in number of day, to complete different activities of software engineering for the software development.

1. **Project Plan**

|  |  |  |  |
| --- | --- | --- | --- |
| Activity | Start date | End date | Duration |
| **Identify Problem Statement** |  |  |  |
| **Requirement Gathering** |  |  |  |
| **Requirement Analysis** |  |  |  |
| Feasibility Study |  |  |  |
| **Literature Survey** |  |  |  |
| **Project Plan** |  |  |  |
| **COCOMO Model** |  |  |  |
| **Design** |  |  |  |
| Block Diagram |  |  |  |
| DFD,ERD |  |  |  |
| UML Diagram |  |  |  |
| **Implementation** |  |  |  |
| Coding |  |  |  |
| Testing |  |  |  |
| **Deployment** |  |  |  |
| **Maintenance** |  |  |  |

**B. Open Source / Microsoft Project plan** : Representation with the “Gantt Chart”

# Software Design

Software design is a process to transform user requirements into some suitable form, which helps the programmer in software coding and implementation. This step is to bring down whole knowledge of requirements and analysis on the desk and design the software product. The inputs from users and information gathered in requirement gathering phase are the inputs of this step. The output of this step comes in the form of two designs; logical design and physical design. Engineers produce meta-data and data dictionaries, logical diagrams, data-flow diagrams and in some cases pseudo codes. Modularity of the system will be used to create the design.

Students are expected to brief the entire system with the help of following diagrams to understand the system. The understanding of the problem clearly will be required to draw the following design diagram.

* **Data Flow Diagram:**
  + Data flow diagram is graphical representation of flow of data in an information system. It is capable of depicting incoming data flow, outgoing data flow and stored data. The DFD does not mention anything about how data flows through the system. DFD can be drawn for different levels with the help of Entity, Process, Data store and data flow.
  + <https://www.javatpoint.com/software-engineering-data-flow-diagrams>
  + <https://www.tutorialspoint.com/software_engineering/software_analysis_design_tools.htm>
* **Entity Relationship Diagram:**
  + Entity-Relationship model is a type of database model based on the notion of real world entities and relationship among them. ER Model is best used for the conceptual design of database with the help of Entity, Attributes and Relationships
  + <https://www.javatpoint.com/dbms-er-model-concept>
  + <https://www.tutorialspoint.com/software_engineering/software_analysis_design_tools.htm>
* **UML Diagram:**
  + UML (Unified Modeling Language) is a standard language for specifying, visualizing, constructing, and documenting the artifacts of software systems. UML was created by the Object Management Group (OMG)
  + Smart Draw/Rational Rose
  + <https://www.tutorialspoint.com/uml/index.htm>
  + <https://www.javatpoint.com/uml>

# Implementation

# The Implementation is the process of transforming the design of a system into a computer language format.

# This phase of software development is concerned with software translating design specification into the source code.

# It is necessary to write source code & internal documentation so that conformance of the code to its specification can be easily verified.

# **Implementation translate the design of system into a computer language format as per the requirement if stated earlier**

# **Reduce the cost of later phases.**

# **Making the program more readable**

# ****If possible Students are expected to implement the modules/Prototype for demonstration****

* **Students can add GUI Snaps, Module Code snippet , Database snippets etc**

# <https://www.javatpoint.com/software-engineering-coding>

# Software maintenance:

# Software maintenance is a part of the Software Development Life Cycle. Its primary goal is to modify and update software application after delivery to correct errors and to improve performance.

# Software is a model of the real world. When the real world changes, the software require alteration wherever possible.

# Software Maintenance is an inclusive activity that includes error corrections, enhancement of capabilities, deletion of obsolete capabilities, and optimization.

# List the Steps/Process for maintenance of the software with the help of manual or help documentation.

# <https://www.javatpoint.com/software-engineering-software-maintenance>

# Project Outcomes:

# State what we have learned from the project as outcome of project after completion of activity

# Challenges faced:

# List the technical/non-technical challenges/problems faced during the entire project activity.

# Conclusion:

# Future Scope:

# Project Group members-

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1. **References**

* List of reference books
* List of reference websites