Laboratory Report

Experiment No - 01

Batch -

Date of Experiment: _____   Date of Submission: _____

Title: Prepare detailed statement of problem for the selected / allotted mini project and identify suitable process model for the same with justification

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Evaluation:

1) Attendance [2]   ----------------

2) Lab Performance [2]   ----------------

3) Oral [1]   ----------------

Overall Marks [5]   ---------------

Subject In-Charge

Experiment No: - 01

TITLE: Prepare detailed statement of problem for the selected / allotted mini project and identify suitable process model for the same with justification.

PREREQUISITE:

1. Concepts of Object Oriented Programming & Methodology
2. Knowledge of developing applications with front end & back end connectivity.

HARDWARE CONFIGURATION / KIT:

Sr. No	Minimum Hardware Configuration	
1	Processor	800MHz Intel Pentium III or above versions
2	RAM	512 MB
3	HDD	1.5 GB of free disk space

SOFTWARE CONFIGURATION:

Sr. No	Minimum Software Configuration	
1	Operating System	Microsoft Windows Vista/7 or above versions
2	Editor	MS Word, Notepad

Theory: -

1. **Project Scope**
   Project scope is the part of project planning that involves determining and documenting a list of specific project goals, deliverables, features, functions, tasks, deadlines, and ultimately costs. In other words, it is what needs to be achieved and the work that must be done to deliver a project.

2. **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.
- The 5 'W's can be used to spark the discussion about the problem.
- A problem statement expresses the words that will be used to keep the effort focused and it should represent a solvable problem.

3. How to Write a Problem Statement

A problem statement is a clear concise description of the issue(s) that need(s) to be addressed by a problem-solving team. It is used to center and focus the team at the beginning, keep the team on track during the effort, and is used to validate that the effort delivered an outcome that solves the problem statement. It has a specific form:

- Vision - what does the world look like if we solve the problem?
- Issue Statement - one or two sentences that describe the problem using specific issues. It is not a "lack of a solution" statement. For example, our problem is that we don't have an ERP system.
- Method - the process that will get followed to solve the problem. For example, DMAIC (an acronym for Define, Measure, Analyze, Improve and Control) or Kaizen (the Japanese word for "improvement").

4. Defining the problem

Before spending time trying to solve a programming problem, it is essential that your first understand the problem to be solved.

  - read, read, read
  - ask questions
  - clarify anything you are not sure of
  - try writing the problem in your own words
  - produce an input processing output chart

5. How to get started

- The 5 'W's - Who, What, Where, When and Why - is a great tool that helps get pertinent information out for discussion.
- *Who* - Who does the problem affect? Specific groups, organizations, customers, etc.
- *What* - What are the boundaries of the problem, e.g. organizational, work flow, geographic, customer, segments, etc. - What is the issue? - What is the impact of the issue? - What impact is the issue causing? - What will happen when it is fixed? - What would happen if we didn't solve the problem?
- *When* - When does the issue occur? - When does it need to be fixed?
- *Where* - Where is the issue occurring? Only in certain locations, processes, products, etc.
- *Why* - Why is it important that we fix the problem? - What impact does it have on the business or customer? - What impact does it have on all stakeholders, e.g. employees, suppliers, customers, shareholders, etc.? Each of the answers will help to zero in on the specific issue(s) and frame the Issue Statement. Your problem statement should be solvable. That is, it should take a reasonable amount of time to formulate, try and deploy a potential solution.

6. **Selection of relevant Process Model**

The software process model framework is specific to the project. Thus, it is essential to select the software process model according to the software which is to be developed. The software project is considered efficient if the process model is selected according to the requirements. It is also essential to consider time and cost while choosing a process model as cost and/ or time constraints play an important role in software development. The basic characteristics required to select the process model are project type and associated risks, requirements of the project, and the users.

One of the key features of selecting a process model is to understand the project in terms of size, complexity, funds available, and so on. In addition, the risks which are associated with the project should also be considered. Note that only a few process models emphasize risk assessment. Various other issues related to the project and the risks are listed in Table.

Table 2.1: Selections based on the Project Type and Associated Risks

Project Type and Associated Risks	Waterfall	Prototype	Spiral
Reliability requirements	No	No	Yes
Stable funds	Yes	Yes	No
Reuse components	No	Yes	Yes
Tight project schedule	No	Yes	Yes
Scarcity of resources	No	Yes	Yes

Table 2.2: Selection based on the Requirements of the Project

Requirements of the Project	Waterfall	Prototype	Spiral	RAD	Formal Methods
Requirements are defined early in SDLC	Yes	No	No	Yes	No
Requirements are easily defined and understandable	Yes	No	No	Yes	Yes
Requirements are changed frequently	No	Yes	Yes	No	Yes
Requirements indicate a complex System	No	Yes	Yes	No	No

Table 2.3: Selection based on the Users

User Involvement	Waterfall	Prototype	Spiral	RAD	Formal Methods
Requires Limited User Involvement	Yes	No	Yes	No	Yes
User participation in all phases	No	Yes	No	Yes	No
No experience of participating in similar projects	No	Yes	Yes	No	Yes

Exercise:

1. Write a problem statement to define the perfect title with the bounded scope of the project.
2. According to Problem Definition stated above, explain which of the Process Model you have selected and why it is selected?

Conclusion:

1. *A problem well stated is half solved*, Wally Davis taught that one. And he's right, the better the clarity around what the team is attempting to fix, the more efficient they'll be in solving the problem, the solution will better 'fix' the issues, and the team can get back to executing the business versus fixing it.
2. Based on observation, comparison and experience the steps in best life cycle selection are:
   a. Being familiar with various models.
   b. Review and analyze the types of work performed like development, enhancement, and maintenance.
   c. Review the life cycle approach to standards required for your organization, your customer, or the type of project.
   d. Identify a set of phase and phase activities.
   e. Evaluate the effectiveness of the life cycle framework and implement improvements where needed.