Merit, Quality & Excellence

DEPARTMENT OF COMPUTER SCIENCE

Final Year Project Handbook

SUKKUR IBA UNIVERSITY

Foreword

This is the Final Year Project handbook of Department of Computer Science, Sukkur IBA University. This handbook contains guidelines for the conception, preparation, implementation, completion and finally the assessment of Final Year Projects.

The intention of this handbook is to develop guidelines and a uniform structure and outline for undergraduate students. It serves as an instructional manual for the expected contents, deliverables, quality and the required quantity of the final projects for students and provides evaluation rubrics for supervisors and evaluators.

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Reviewed by:

- Dr. Ahmad Waqas, Head of Department

1.1 Introduction

The Final Year Project (FYP) is the partial fulfillment of students' degree program that weights six (06) credit hours. The main purpose of this project is to synthesis the education gathered during the various courses credited by the student during the undergraduate program at Sukkur IBA University. This helps them to focus on a serious problem for an extended period of time, to demonstrate how well they are able to solve real world problems. This provides them with a great opportunity to demonstrate their technical knowledge and apply what they have learned to the other components of the degree. Students also have the opportunity to improve their technical skills, connect through the combination of reading, presentation and learning how to work in teams. Students will get chance to learn professional practices with a real-world problem and a range of non-technical issues such as leadership, finance, health, quality, environmental and social impacts. It also offers an objective evaluation of the students' progress towards their education at the department during their academic tenure.

FYP course is different than other courses because it demands independent objective formulation, planning, management and self-motivation. It is therefore necessary for teachers, instructors and evaluators to establish fair and detailed guidelines. Therefore, a standardized manual and lifecycle system is necessary to help students meet the required quality standards, outline supervisor's general expectations and evaluator's sketch criteria. Hence, it contributes as a fundamental underpinning to achieve high quality learning outcomes.

1.2 Program Learning Outcomes (PLOs)

Program Learning Outcomes are the narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills and attitude acquired by students as they progress through the program. The curriculum should show that the participants have reached at least some acceptable minimum level of knowledge, skills and behavioral characteristics by the time of graduation. In general, it must be demonstrated that the following graduate attributes have been acquired by the students:

I. **Computing Knowledge:** An ability to apply knowledge of mathematics, science, computing fundamentals and computing specialization to the solution of complex computing problems.

II. **Problem Analysis:** An ability to identify, formulate, research literature, and analyze complex computing problems reaching substantiated conclusions using first principles of mathematics, natural sciences and computing sciences.

III. **Design/Development of Solutions:** An ability to design solutions for complex computing problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

IV. **Investigation:** An ability to investigate complex computing problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.

V. **Modern Tool Usage:** An ability to create, select and apply appropriate techniques, resources, and modern IT tools, including prediction and modeling, to complex computing activities, with an understanding of the limitations.

VI. **The Computer Scientist and Society:** An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional computing practice and solution to complex computing problems.

VII. **Environment and Sustainability:** An ability to understand the impact of professional computing solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.

VIII. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of computing practice.

IX. **Individual and Team Work:** An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.

X. **Communication:** An ability to communicate effectively, orally as well as in writing, on complex computing activities with the computing community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

XI. **Project Management:** An ability to demonstrate management skills and apply computing principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.

XII. **Lifelong Learning:** An ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

1.3 Overview of Final Year Project

The FYP will be registered in CMS like other courses. A student is expected and encouraged to have passed major core courses. A Final Year Project is a two-semester course in which students usually of 2 members select a project and are supervised by a faculty member of the Department of Computer Science, Sukkur IBA University. In this course, students will be responsible to clearly define the objectives of proposed project under the supervision of faculty members. All students are also responsible to prepare the project idea and proposal including defining the statement of the problem, defining system requirements, defining different candidate solutions for the problem of study, making feasibility study for different candidate solutions, defining the best candidate solution, and defining timetable schedule. Students send the final project report to the FYP management committee at the end of the semester.

1.4 FYP milestones and evaluation stages

The FYP milestones, deliverables, evaluation stages along with their timelines is given the Table 1 and Table 2.

Table 1: Milestones & Marks Distribution

Brainstorming Session	0%
Idea (Abstract) Defense	0%
Proposal Defense (PD)	**5%**
o Supervisor + Co-Supervisor Marks: Project Proposal Document + Presentation	o 3%
o Evaluation Committee Marks: Project Proposal Document + Presentation	o 2%
Mid Defense (MD)—FYP Phase-I	**35%**
o Supervisor + Co-Supervisor Marks: Report + Presentation + Prototype demonstration (30% work – SRS & SDS)	o 20%
o Evaluation Committee Marks: Report + Presentation + Prototype demonstration (30% work – SRS & SDS)	o 15%
Final Defense (FD)—FYP Phase-II	**55%**
o Internal Evaluation Committee Marks:	
o Presentation + Demonstration	o 10%
o Final Report	o 5%
o External Evaluation Committee Marks:	
o Presentation + Demonstration	o 15%

o Final Report	o 5%
o Supervisor + Co-Supervisor Marks:	
o Presentation + Demonstration	o 15%
o Final Report	o 5%
FYP Project Exhibition (Poster)	**5%**
Total	**100%**

Table 2: Detailed timeline of FYP phases

Phase	Week	Duration	Semester
Brainstorming Session (Team formation and supervisor selection)	Week 04	2 Weeks	6th
Idea Abstract Submission	Week 08	1 Day	6th
Abstract Defense	Week 10	1 week	6th
Proposal Document Submission	Week 13	1 Day	6th
Proposal Defense (Presentation)	Week 02	1 Week	7th
FYP Phase-I (Report) **Submission**	Week 11	1 Day	7th
Mid Defense (MD)—FYP Phase-I (Report + Presentation + Demonstration)	Week 13	1 week	7th
Final Report Submission	Week 10	1 Day	8th
Internal Evaluation (Report + Presentation + Demonstration)	Week 11	1 Day	8th
Final Project Submission	Week 13	1 Day	8th
Final Defense (Report + Presentation + Demonstration**) – External**	Week 14	1 Day	8th
Projects Exhibition	Week 15	1 Day	8th

1.4.1 Brainstorming Session

The FYP management committee will conduct a session in 6th semester for students to present their initial ideas for FYP. In this session faculty members evaluate the initial ideas of students and they will be guided on FYP Phases. Faculty members will also help students to select a topic and supervisor during this brainstorming session. They will also give a guidance about time limits, requirements and expectations from students and how their project would be assessed.

1.4.2 Idea (Abstract) Defense

After the brainstorming session and team formation, each group of students will be responsible to prepare the project idea abstract. Students are required to register for project on a form having title of project, its abstract, supervisor name, group members and their signature. FYP MC will arrange group presentations in which faculty members will evaluate the initial project idea. Committee will get feedback about initial project idea from faculty and supervisors and conveys the recommendation(s) and changes (if

any) to back to students. FYP registration and idea abstract form given in Annex A. FYP idea (abstract) feedback form given in Annex B.

1.4.3 Proposal Defense

The students must finalize the project topic and define the objectives of the project under the supervision of a faculty member, and prepare the project proposal document. The format of FYP proposal defense document and evaluation forms and their rubric are given in Annex C.

1.4.4 Mid-Defense—FYP Phase-I

After proposal defense, next FYP activity is mid defense. Students have to present their work and progress. The students are expected to complete at least 30% of their work. The format of mid defense and evaluation forms and their rubric are given in Annex B. Students also have to submit the Software Requirement Specifications (SRS) and Software Design Specification (SDS) documents at the time of mid defense. Template for SRS, SDS and evaluation rubrics are attached in Annex D.

1.4.5 Final Defense

Final defense is the final activity for FYP students, which is evaluated by Supervisor, Co-supervisor and evaluation committee. The format of FYP final defense and evaluation forms and their rubric are given in Annex C. Also, the template for FYP final report submission is attached in Annex E.

1.4.6 Projects Exhibition (Poster)

Projects exhibition session will be arranged for final exhibition of final year projects in form of posters. An FYP group will be required to make a poster, print out the poster on pane flex and get it framed. Most of the people from industry visits FYP posters and judges are allocated to each FYP for evaluation. The template and rubrics are given in Annex F.

1.5 Guidelines for Project Supervision

Following rules should be taken under considerations during project supervision.

a) Every group will work throughout the final year under the supervision of an assigned supervisor.

b) Students are recommended to meet with their supervisor at least once a week. Students are expected to discuss their progress at these weekly meetings with their supervisors. Depending on the needs of the students and the availability, supervisors can also schedule additional meetings (physical/online) as requested.

c) Supervisors may also arrange contact with student groups via email or other means to advise project groups.

d) It is the supervisor's duty to educate his/her students about this manual and all the guidelines and regulations included.

1.5.1 Tasks expected from supervisors

During these meetings supervisors are expected to:

Task	Category
✓ To provide FYP Outlines / Objectives	Orientation
✓ Discuss project expectations and the plan with the group	
✓ To share previous practice experience, research, skills and expertise	
✓ Assign /Recommend related literature	Provide Knowledge
✓ Give training sessions on the respective research area and tell them what they need to know	
✓ To clarify students queries effectively as needed	
✓ To make students aware of professional ethics and standards	
✓ To advise students on how to deal effectively as a team while working under pressure, remaining optimistic and persistent, and how to meet milestone deadlines	
✓ To monitor the project progress on a weekly/fortnightly basis	Assess
✓ To ensure students are completing outlined project deliverables	
✓ To grade students work (at individual/group level) at the end of each semester	

1.5.2 Project Development Life Cycle:

At the end of each step, the supervisors will direct the team through various steps in the life cycle of software engineering and will define, analyze, assign, obtain and review the related results/artifacts as described in Figure 1.

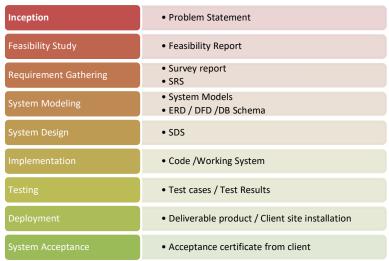|	
Inception	• Problem Statement
Feasibility Study	• Feasibility Report
Requirement Gathering	• Survey report • SRS
System Modeling	• System Models • ERD / DFD /DB Schema
System Design	• SDS
Implementation	• Code /Working System
Testing	• Test cases / Test Results
Deployment	• Deliverable product / Client site installation
System Acceptance	• Acceptance certificate from client

Figure 1: Software Engineering Lifecycle and Respective artifacts

Students perform the initial phases of project planning, collection, evaluation and development during the project proposal. Students start the development process of their proposed project in the project implementation. As part of SDLC, the supervisors should guide the students to follow, but not limited to, the following best-practices:

a) Having a life cycle or system development methodology
b) Ensure proper research and background knowledge is acquainted
c) Feasibility study is conducted on the proposed project
d) Scope of the project is precise and crystal clear
e) Generating and comparing alternative designs to determine best match for the requirements
f) Roles & responsibilities of individual student working within the group is clear and accepted
g) Able to apply project resources as per the approved project plan
h) Track and report any issues and risks in completing assigned tasks
i) Both logical and physical design aspects are analyzed
j) Proper programming standards are maintained during the development of the project
k) Auto or Manual Test Cases are implemented and executed
l) Source control with versioning tools are used for developing as a team
m) Documenting required deliverables using industry standards
n) Participating in Seminars, Events, Publications and Workshops relevant to the project

1.6   Responsibility of Management Committee (MC):

Competent authority will nominated three faculty members for management committee of FYPs. FYP MC will responsible for the following:

a.	MC will contact with faculty members to call for new ideas.
b.	Arrange brainstorming session for students. Give FYP handbooks to students and supervisors.
c.	Collection of project ideas (Abstracts) from students. Collection of evaluation reports from faculty members.
d.	Submission and evaluation of proposals. Formation of evaluation teams for proposal defense
e.	Re-evaluation of rejected or deferred proposals
f.	MC will collect FYP-I reports from students.
g.	Arrangements of FYP-I presentation session in front of evaluation committee members.
h.	Responsible for collection of grading of FYP-I results from supervisors and FYP-I evaluation committee.
i.	Arrangements of external evaluators. Preparation of list of externals finally approved and available.
j.	Collection of FYP-II reports and FYP folders from supervisors.
k.	Formation of FYP-II evaluation committee which includes internal and external examiners
l.	Distribution of reports of FYP-II to internal and external examiners
m.	Arrangements of FYP-II presentation session in front of internal and external examiners.
n.	Collection of evaluation results of FYP-II from internal and external examiners
o.	Collection of posters from students of FYP-II. On session results collections from industry experts
p.	Approval of grading of FYP from convener/HoD and distribution to Examination department
q.	Collection of final deliverables from pass students of FYP-II
r.	Evaluation of final deliverables of FYP-2 and distribution to Library

1.7   Students Responsibility:

During the Final Year Project, students are responsible for the following:

s.	It will be responsibility of student to choose a supervisor according to their area of interest. In order to balance load among faculty, a supervisor may not supervise more than 4 projects
t.	Agree with their assigned supervisors on the topic
u.	Perform weekly tasks, assigned by the supervisor (or distributed by the team leader). Students are required to keep minutes of meeting of all meeting with FYP supervisors. At least 8 meeting in a semester would be required. Minutes of meeting form given in Annex G
v.	Discuss problems and seek advice from the supervisor in order to accomplish the assign tasks.
w.	Provide supervisor weekly status reports and get his/her feedback

x.	Apply recommendations to refine the previous task
y.	Finalize the project proposal and implementation, incorporating all the feedbacks and comments provided by the supervisor and evaluators.
z.	Conduct presentation at the end of each semester and defend project to the evaluation panel

1.8   Late submissions:

It is the responsibility of each group to ensure that they meet each semester's milestones and send results by the deadline for submission. No project will be accepted or approved after the deadline and the appropriate measures will be taken in compliance with the policy of the supervisor and the FYP management committee.

1.9   Plagiarism:

Each project must be the original work of student groups. Students will be required to submit their project proposal and implementation results at the end of each semester in accordance with the deliverables guidelines given and the original work undertaken during each semester. Supervisor will assure before submission of projects reports that there is no Plagiarism. A certificate dully signed by supervisor would be required in this regard. However at this level work having more that 30% similarity would not be considered for further evaluation. Hence, it is extremely important to note that it is the responsibility of students to ensure they are not plagiarizing knowingly or unknowingly.

If students are found plagiarizing either in project proposal report or in the project implementation solution/code, immediate strict action will be taken as per the university policy.

1.10 Change of Project/Supervisor:

A supervisor may request change in title or scope of a project to HoD through FYP MC. The change of supervisor will not be allowed after approval of a project proposal. In case a supervisor leaves the department then an FYP group can request the FYP MC for change of supervisor.

1.11 Time Extension:

An FYP group is required to complete their project in two consecutive semesters. However if a group fails to submit requirement(s) on time then that project may be awarded an F grade or may be granted an extension up to six months on recommendation of their supervisor and HoD. In case of grant of extension a fee equal to fee of one course would be charged per student. Such groups would wait for final

defense presentation of next batch and no special arrangement would be made for their final defense.

1.12 Web Portfolio, Rights and Ownership:

An FYP group will be required to make a web portfolio of your project and share the link with us. All the IP rights of FYP are reserved with SIBAU. An FYP group will be required to return all the material/supplies issued by SIBAU.

1.13 Reports Submission and Formatting:

An FYP group will make four copies of your report (hard bound with embossed printing) and four CDs containing the project data (separate instruction already given to students in this regard). One copy is for the department, one for the supervisor, one for the library and one and one for the candidate. Place the CD in a paper pocket and paste it on inside of back cover. All the FYP reports should follow the standard formatting as given in Annex H.

Annex-A

Final Year Project – Registration Form

Project Title:	
Supervisor Name:	
Co-Supervisor (if any)	
Group Leader:	
Group Member:	
Submission Date:	

Abstract:

Name	Team Member 1	Team Member 2
Signature		

_____
Supervisor Signature

_____
Co-Supervisor Signature

Merit, Quality & Excellence
Sukkur IBA University
Department of Computer Science FYPs Abstract Presentation
Date: DD-MM-YYYY

Name of Faculty:_____

#	Title of FYP	Supervisor	Co-Supervisor	Student 1	Student 2	Remarks/Feedback
1						
2						
3						
4						

Annex-C

FYP Proposal Document Template

TITLE

Final Year Project Proposal

by

Names

Supervisor:

Co-Supervisor:

Sukkur IBA University

Computer Science Department

(2019)

ABSTRACT

Abstract of the proposal

INTRODUCTION and BACKGROUD

Discuss the opening perspective of the problem area, the challenge in that area and refine the challenge into a concise

PROBLEM IDENTIFICATION

What is the unmet need or problem to be solved by the FYP? How relevant is the issue? Quantify as much as you can.

Incase of a research problem, show the significance of the unsolved problem.

Target customers?

List the type of customers who want a solution to the problem. For each type of customers indicate the potential market size. Incase of a research problem, identify where this research will be used?

LITERATURE REVIEW

What has been done by others to solve the problem? What solutions are already present in the market? what are their disadvantages?

In case of a research problem, literature review of the state-of-the-art should be included.

PROJECT GOAL

Discuss the goal of the project and highlight the proposed solution.

Give your value proposition. How is your solution going to be different and better than others?

Students must describe to maximum detail the final project output, its expected packaging, and hardware and software components.

PROJECT TECHINCAL APPROACH AND METHODLOGY

Distribute the project goals into smaller objectives/modules and highlight deliverables for each objective.

Explain the modules of project through a system level block diagram.

Students may also mention tools, technologies and suitability of the method(s) to be employed with justification.

In case of a research problem, show the few approaches that will be investigated in the project?

PROJECT MILESTONES AND DELIVERABLES

Clear milestones should be defined at the start of the project which includes a Gantt chart in the project management document

WORK DIVISION

Clear work division among group members to be shown

COSTING

Cost breakdown of the project to be shown, estimating the total cost of the final product.

REFERENCES

Any material/information referred from research papers, books or/and websites should be acknowledged under this heading.

The students are recommended to use any biblography management software to keep track of references. e.g. EndNote, Mendlay, Jabref

FYP Proposal Defense Evaluation Form and Rubrics

Criteria	1 (Marks 0-1)	2 (Marks 2-4)	3 (Marks 5-7)	4 (Marks 8-9)	5 (Marks 10)
R1 Subject Knowledge	Student has no knowledge of both problem and solution. Cannot answer basic questions.	Student has no or very less knowledge of both problem and solution. Cannot answer questions.	Student is uncomfortable with information. Seems novice and can answer basic questions only.	Student has competent knowledge and is at ease with information. Can answer questions but without rationalization and explanation.	Student has presented full knowledge of both problem and solution. Answers to questions are strengthen by rationalization and explanation
R2 Organization and Content of Presentation	Student is clueless about the content of his presentation.	Information is arranged in confused and unstructured way. Key points are not covered. The contents are hard to understand and interpret.	Information articulated clearly but it is difficult to follow the presentation. All key points are covered but no use of charts, graphs, figures etc., to explain salient points.	Information articulated clearly and the flow is reasonable All key points are covered but limited use of charts, graphs, figures etc., to explain salient points.	Information articulated clearly and is organized in a structured way with logical flow between parts. All key points are covered. Enhances presentation and keeps interest by effective use of charts, graphs, figures etc., to explain salient points.
R3 Problem Statement	Problem statement is not stated at all or vaguely stated Description of unmet need or problem is missing	Problem statement is stated but not entirely clear. Seems novice and can answer basic questions only.	Problem statement is stated but lacks necessary justification in light of the literature review.	Problem statement is stated and covers necessary justification with reference to the literature review. Details of the unmet need or problem the FYP is aiming to solve are clear	Problem statement is stated and covers sufficient justification. New reader can clearly understand its value and context. Details of unmet needs are there. Potential customers have been identified
R4 Literature Review	Literature Review is not written or written in a vague form	Ligature Review is written in an ordinary way. The review material i.e. research papers or web material is not at all clear to a reader who is unfamiliar.	Literature review provides a reasonable description of the project background and its significance but can be improved. Number of research papers/ web material needs to be added more	The review provides a good background and details of the literature. However, it is not written in scientific writing standards for review.	Literature review is excellently written according to the scientific writing standards and covers maximum of the research papers/web material related to project
R5 Project Technical Approach, Methodology	The approach that will be taken to solve the problem is not discussed.	Some aspects of the solution are discussed briefly but much of the description is left	The methods, approaches, tools, techniques, algorithms, or other aspects of the solution are	The methods, approaches, tools, techniques, algorithms, or other aspects of the solution are	The methods, approaches, tools, techniques, algorithms, or other aspects of the solution are sufficiently discussed with

		out.	discussed but not is a convincing manner. Much is left to the readers' imagination.	sufficiently discussed.	sufficient details and supporting figures. Work division between group members is clearly defined
R6 **Language and Grammar**	A lot of spelling and grammatical mistakes in the report Writing is not understandable.	Frequent spellings and grammatical errors that impede the reading flow. Writing is in need of significant editing and improvement	Occasional spellings and grammatical errors Writing is acceptable but not entirely clear.	Occasional spellings and grammatical errors that have only minor impact on flow of reading. Writing is overall clear. Organization is good. Content is supported by good number of figures and tables.	Almost no spelling or grammatical mistake. Writing is easy to read. Excellent organization. Writing is concise yet all necessary content is included. Figures and tables support content.
R7 **Delivery & Presentation Skills**	Presentation was not clear at all. Language was not appropriate	Presenter occasionally spoke clearly. Holds little to no eye contact.	Presenter spoke clearly. Language was generally clear but mostly reading from notes.	Presenter spoke very clearly. Language was generally clear and delivery was fluent. Consistent use of direct eye contact with audience.	Presenter spoke clearly and at a good pace to ensure audience comprehension. Language was used effectively and delivery was fluent and expressive.
R8 **Work Division**	Work division among group members is not shown	Work Division among group members is not appropriate.	Work division is shown but more clarity is needed	Work division is shown.	Clear work division among group members is shown.

FYP Proposal Defence Evaluation Form

Project Title   _____

Student Names   _____

PLO	S No	Description	Weight	Performance (1 – 5)					Marks
PLO-1: Computing Knowledge	R1	**Subject Knowledge**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R2	**Organization and Content of Presentation**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-6: The Computer Scientist and Society	R3	**Problem Statement**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-2: Problem Analysis	R4	**Literature Review**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-3: Design/ Development of Solution	R5	**Project Technical Approach, Methodology**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R6	**Language and Grammar**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R7	**Delivery & Presentation Skills**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-9: Individual & Team Work	R8	**Work Division**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	

Evaluator Name: _____   Signature with Date: _____

Comment _____

Commented [rSa1]: Dr. Ajmal Please define the proper weightages

6

Annex-D

Sukkur IBA University

Software Requirements Specification (SRS)

For

[Name of System]

Version [xx]

[Team Members]

[Supervisor]

Date of preparation

Project Code	
Supervisor	
Co-Supervisor	
Project Manager	
Project Team	
Submission Date	

7

[Instructions]

- *No section of template should be deleted. You can write 'Not applicable' if a section is not applicable to your project. But all sections must exist in the final document.*

- *All comments/examples mentioned in square brackets ([]) are in the template for explanation purposes and must be replaced / removed in final document.*

- *This' Instruction' section should also be removed in final document.*

- *MS-Word Reviewing feature must be used to get the document reviewed by PMs or supervisors.*

Document History

[Revision history will be maintained to keep a track of changes done by anyone in the document.]

Version	Name of Person	Date	Description of change
			[e.g. Document Created]
			[Added Non-functional requirements]
			[Added UseCase x.x.xx]

Distribution List

[Following table will contain list of people whom the document will be distributed after every sign-off]

Name	Role
	Co-Supervisor
	Project Manager

Document Sign-Off

[Following table will contain sign-off details of document. Once the document is prepared and revised, this should be signed-off by the sign-off authority.

Any subsequent changes in the document after the first sign-off should again get a formal sign-off by the authorities.]

Version	Sign-off Authority	Project Role	Sign-off Date

Table of Contents

1. Introduction

1.1. Purpose of Document

[Describe the purpose of this document.]

1.2. Intended Audience

[Describe people who are concerned with or are expected to use this document.]

1.3. Document Convention

[Describe the font and font size that this document will be using]

1.4. Project Scope

[This section will give an overview of project scope. This of project and will mention project boundaries and main functionalities that will be addressed in the system.]

1.5. Not In Scope

[This section will highlight/explicitly mention the functionalities (if any) that are not in the scope of current project.]

Overall System Description

1.6.   Project Background

[This section will establish business context in which system is being built. This will describe background information and will mention the actual problem / opportunity in business that triggered the project.]

1.7.   Project Objectives

[This section will describe the objectives of project that how it is going to address the problem\opportunity identified in business environment and what would be the end result of project.]

1.8.   Stakeholders

[This section will describe stakeholders of the system. This will include different business user classes that are expected to interact with system and similarly the technical people who are going to be involved in software development/management]

1.9.   Operating Environment

[Describe the environment in which the software will operate, including the hardware platform, operating system, network environment and other software components or applications with which it must coexist.]

1.10.   System Constraints

[Describe the constraints imposed on the system by the external environment. External environment may be caused by the stakeholders, business conditions, technical issues, academic requirements etc and may include the following:

- *Software constraints*
- *Hardware constraints*
- *Cultural constraints (includes language etc.)*
- *Legal constraints*
- *Environmental constraints (e.g., the environment where the software will be installed, It could be a noisy environment, which may require that there is no sound event in the project).*
- *User constraints (e.g., the project is developed for children, so it may be required that the project has more graphic controls rather than textual controls).*
- *Off the shelf components that might be used in the project may have their constraints that are consequently transferred to the project.]*

1.11.   Assumptions & Dependencies

[This section will identify:

- *Any assumptions taken regarding the system or environment*
- *Any dependency of system on any external factor.]*

2. External Interface Requirements

[This section is intended to specify any requirements that ensure that the new system will connect properly to external components. Place a context diagram showing the external interfaces at a high level of abstraction.]

2.1.   Hardware Interfaces

[Describe the characteristics of each interface between the software and hardware components of the system. This description might include the supported device types, the nature of the data and control interactions between the software and the hardware.]

2.2.   Software Interfaces

[Describe the connections between this system and other external software components (identified by name and version), including databases, operating systems, tools, libraries, and integrated commercial components. Identify and describe the purpose of the data items or messages exchanged among the software components. Describe the services needed and the nature of the inter-component communications. Identify data that will be shared across software components.]

2.3.   Communications Interfaces

[Describe the requirements associated with any communication functions the system will use, including e-mail, web browser, network communications standards or protocols, electronic forms, and so on. Define any pertinent message formatting. Specify communication security or encryption issues, data transfer rates, and synchronization mechanisms.]

3. Functional Requirements

3.1. Functional Hierarchy

[This section will give a big picture of overall system functionality. The main modules/features of system and their sub-functions will be described here in the form of a functional hierarchy so that, before getting into the use case, audience could grab the idea of overall system functions.]

3.2. Use Cases

3.2.1. [Title of use case]

[Use Case Diagram]
[Use Case Description]

<Use case Id: name>		
Use case Id:	Write use case reference number.	
Actors:	<List of actors (external agents), indicating who initiated the use case>	
Feature:	<Feature from which the use case is driven>	
Pre-condition:	<List the assumptions required before this Use Case can be executed. >	
Scenarios		
Step#	**Action**	**Software Reaction**
1.	Numbered actions of the actors	Numbered description of system responses
2.		
Alternate Scenarios: Write additional, optional, branching or iterative steps. Refer to specific action number to ensure understandability.		
1a:		
2a:		
Post Conditions		
Step#	**Description**	
	Sequentially list conditions expected at the completion of the use case.	
Use Case Cross referenced	<Related use cases, which use or are used by this use case>	

4. Non-functional Requirements

4.1. Performance Requirements

[The performance characteristics of the system that are required by the business should be outlined in this section. Performance characteristics include the speed, precision, concurrency, capacity, safety, and reliability of the software. These characteristics define the performance of the project.]

4.2. Safety Requirements

[Specify the requirements that are concerned with possible loss, damage, or harm that could result from the use of the system. Define any safeguards or actions that must be taken, as well as potentially dangerous actions that must be prevented. Identify any safety certifications, policies, or regulations to which the system must conform.]

4.3. Security Requirements

[Specify any requirements regarding security, integrity, or privacy issues that affect the use of the system and protection of the data used or created by the system. Define all user authentication or authorization requirements, if any. Identify any security or privacy policies or certifications the system must satisfy.]

4.4. User Documentation

[List the user documentation components that will be delivered along with the software, such as user manuals, online help, context-sensitive help and tutorials.]

5. References

[This section should provide a complete list of all documents referenced at specific point in time. Each document should be identified by title, report number (if applicable), date, and publishing organization. Specify the sources from which the references can be obtained. (This section is like the bibliography in a published book).]

6. Appendices

[This section should include supporting detail that would be too distracting to include in the main body of the document.]

Sukkur IBA University

Software Design Specification (SDS)

For

[Name of System]

Version [xx]

[Team Members]

[Supervisor]

Date of preparation

Project Code	
Supervisor	
Co-Supervisor	
Project Manager	
Project Team	
Submission Date	

1. Introduction of Design Document

2. Entity Relationship Diagram (ERD)

3. Sequence Diagrams

4. Architecture Design Diagram

5. Database Diagram

6. Class Diagram

7. Interface Design

8. Test Cases

FYP Mid Defense SRS/SDS Evaluation Form and Rubrics

Criteria	1 (Marks 0-1)	2 (Marks 2-4)	3 (Marks 5-7)	4 (Marks 8-9)	5 (Marks 10)
R1 **Project Scope**	Not written	Project Scope is identified and written in vague way and is it very hard to understand	Project scope is identified and written in ordinary way and conveys the massage	Project scope is identified and written in good way and it clearly defines the scope, however it can be improved to achieve excellency	Project scope is identified and written in excellent and concise way. No further improvements are required
R2 **Overall Description**	Not written	Overall description is written in vague way and is it missing any of the two required points i.e. Product perspective and design constraints	Overall description is written in ordinary way and defines the required points i.e. Product perspective and design constraints in normal way. Product perspective is not formulated and analyzed accurately	Overall description is written in good way. Product perspective does not lack any required information. All the necessary design constraints are well derived and formulated	Overall description is written in excellent and concise way. No further improvements are required in this regard
R3 **External Interface Requirements**	Not written	Software, user, hardware and communication interface requirements are not satisfactory. Either all of them are not properly defined or mentioned in vague way	These external interface requirements are satisfactory. They have been defined in ordinary way with a lot of improvements required to meet the criteria	All these external requirements are described in good way. All required information is properly conveyed. However, still there is room for improvements	Overall external interface requirements are written in excellent and concise way. No further improvements are required in this regard
R4 **Functional Requirements**	Not written	System features which covers the functional requirements of the product are not satisfactory. Very difficult to understand. Did not cover all the functional requirements of the	All the identified functional requirements are satisfactory; however they have been described with ordinary details. However, there is repetition in these requirements and	All the functional requirements are identified and written in good way; including the important details. There is no repetition in these requirements. However these can be further improved by removing the inconsistencies and ambiguities. There are very few	Functional requirements have been covered in excellent and clear way with all the needed details. There exists no repetition. All the ambiguities and inconsistencies have been removed. All the UML notations have been used in correct way

		system. They have been defined in vague way	includes ambiguities. There are many errors in UML notations.	UML notation issues	
R5 Non-Functional Requirements	Not written	Non-functional requirements of the system have not been covered in proper way. There are a lot of deficiencies and does not achieve the basic level of satisfaction. Very difficult to understand	The non-functional requirements are identified and described in satisfactory way. . However, there is repetition in these requirements and includes ambiguities. There is no proper categorization of various types of non-functional requirements	Non-functional requirements are identified and classified properly and written in a good way. Performance, Reliability, Security, Efficiency, Robustness and maintainability etc. are clearly defined. However, there is still room for improvement.	Non-Functional requirements have been covered in excellent and clear way with all the needed details. There exists no repetition. All the ambiguities and inconsistencies have been removed. They are well-organized, prioritized and written in testable form
R6 Grammar, and spelling	Very Serious mistakes in grammar and language. There are a lot of spelling mistakes and typos	Serious mistakes in grammar and spelling.	Some grammar and spelling mistakes. Also not appropriate wording at some places.	Very minor grammar, spelling and language issues. The improvements are possible by using more appropriate wording	Excellent grammar used. No spelling mistakes at all
R7 Expression Tone	Very hard to understand. Tone not at all appropriate	Hard to follow or poor word choices. Tone also non-professional	Easy to read and understandable. However, still the tone is not professional	Easy to read and understandable. Good expression tone is used. Professional tone is used. However, there is room for improvements	Pleasure to read. Tone is concise, clear and highly professional. No further improvements are needed.

SRS/SDS Evaluation Form

Project Title   _____

Student Names   _____

PLO	S No	Description	Weight	Performance (1 – 5)					Marks
PLO-2: Problem Analysis	R1	**Project Scope**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-2: Problem Analysis	R2	**Overall Description**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-3: Design/ Development of Solution	R3	**External Interface Requirements**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-4: Investigation	R4	**Functional Requirements**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-4: Investigation	R5	**Non-Functional Requirements**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R6	**Grammar, and spelling**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R7	**Expression Tone**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	

Evaluator Name: _____   Signature with Date: _____

Comments   _____

               _____

Commented [rSa2]: Dr. Ajmal Please define the proper weightages

24

FYP Mid Defence Presentation Evaluation Form and Rubrics

Criteria	1 (Marks 0-1)	2 (Marks 2-4)	3 (Marks 5-7)	4 (Marks 8-9)	5 (Marks 10)
R1 Analysis and approach	Unable to plan and set objectives for the realization of the project. Correct approach to solve the project is not followed	In between	Adequate analysis of the project. Objectives have been set, but strategies to follow are not clearly stated. Approach taken to solve the problem is satisfactory.	In between	Complete analysis of the project has been done. Objectives have been set. Strategies to follow have been defined. Approach taken to solve the problem has been chosen after thorough analysis.
R2 Novelty and Creativity	Description of unmet need or problem the project caters to is missing. The proposed solution is not novel. The project appears trivial.	In between	Details of the project novelty are briefly discussed. The novelty of the proposed solution is marginal.	In between	Details of unmet needs the project caters to are there. Potential customers have been identified. The proposed solution is novel The project solves complex engineering problem. The project can be included in the startup stream
R3 Subject Knowledge	Student has no knowledge of both problem and solution. Cannot answer basic questions.	In between	Student is uncomfortable with information. Seems novice and can answer basic questions only.	In between	Student has presented full knowledge of both problem and solution. Answers to questions are strengthen by rationalization and explanation
R4 Timeline and Implementation Progress	Timeline as defined in the project proposal is not followed. Milestones have not been achieved.	In between	Timeline as defined in the project proposal is followed for the most part. Some of the milestones have been achieved	In between	All milestones are completed according to the timeline defined in project proposal
R5 Team work	Only one member appears to be actively working on the project.	In between	Not all members have contributed to the project. Work division is not clearly mentioned.	In between	All members contributed. Work division clearly mentioned

FYP Mid Defence Presentation Evaluation Form

Project Title   _____

Student Names   _____

PLO	S No	Description	Weight	Performance (1 – 5)					Marks
PLO-4: Investigation	R1	**Analysis and Approach**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-12: Lifelong Learning	R2	**Novelty and Creativity**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-1: Computing Knowledge	R3	**Subject Knowledge**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-11: Project Management	R4	**Timeline**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-9: Individual & Team Work	R5	**Team work**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
		Understanding of the domain & Quality of work completed up till now?	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
		Implementation Progress: Has the team achieved the milestones up till the mid-defense?	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	

Evaluator Name: _____ Signature with Date: _____

Comments _____

_____

Commented [rSa3]: Dr. Ajmal Please define the proper weightages

FYP Final Report Template

TITLE OF THE PROJECT

Final Year Project Report

by

Names

In Partial Fulfillment

Of the Requirements for the degree

Bachelors of Science (CS/SE)

Sukkur IBA University,

Sukkur, Sindh Pakistan

(2019)

[Project Title]

by

<Group Members>

SUBMITTED TO THE DEPARTMENT OF
COMPUTER SCIENCE IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF

**BACHELOR OF SCIENCE IN COMPUTERR
SCIENCE / SOFTWARE ENGINEERING**

at
the

SUKKUR IBA University

Month, YYYY

Signature of Author(s)

<Group Members>

Certified by: Internal Examiner

**<Name>,
<Designation>, <Department>**

External Examiner

**<Name>,
<Designation>, <Department & Organization>**

Accepted by:

**<Name>,
<Designation>, <Department>**

DECLARATION

We hereby declare that this project report entitled "TITLE" submitted to the "DEPARTMENT NAME", is a record of an original work done by us under the guidance of Supervisor "NAME" and that no part has been plagiarized without citations. Also, this project work is submitted in the partial fulfillment of the requirements for the degree of Bachelor of Computer Science.

Team Members	Signature
Name	_____
Name	_____
Name	_____
Name	_____
Name	_____

Supervisor:	Signature
Supervisor Name	_____

Date:
_____

Place:
_____

DEDICATION

ACKNOWLEDGEMENTS

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

Include a brief summary of the problem statement, challenges, proposed solution, approaches, scope, and comparison with existing systems/evaluation methods, conclusion and future directions. Recommend length is 1 page maximum. Abstract must be self-explanatory and should not include any references or short hand notations in the abstract.

INTRODUCTION

Introduction is mostly written for non-specialists so that they can get an overview of the project without technical details. It should provide a brief overview of the project aims and structure of the solution. It should also specify what **unmet need or problem the FYP caters for and who needs it.**

At the end of chapter, provide a summary of the report organization, chapter outlining what has been covered in this chapter and explain what comes in the following chapters.

1.1 GENERAL FORMAL OF THESIS

Following is the generic format for the final documentation.

1. Introduction
2. Literature Review
3. Problem Definition
4. Methodology/Solution Statement
5. Detailed Design and Architecture
6. Implementation and Testing
7. Results and Discussion
8. Conclusion and Future Work
9. References
10. Appendices (if any)

1.2 STYLES

1.2.1 Typeface

Space of the text should be 1.5, Font. 12 Times New Roman (TNR), text must be justified
The first line of the paragraph should be indented and single line space be given between paragraphs.

1.2.2 Margins

Left 1.5 inches
Right, Top, Lower 1.2 inches

1.2.3 Headings

Chapter Number 16 TNR (Italics, Bold, Justified to the right, first letter in capital i.e. "C")
Chapter Heading 16 TNR (All capital, bold, adjusted in the center)
The following headings should all be left aligned and text should begin from the next line with indentation.
First Level Heading 14 TNR (All capital, bold)
Second Level Heading 12 TNR (Bold, First letter of each main word in capital) Third Level Heading 12
TNR (Bold, Only first letter of first word in capital)

1.3 TABLES AND FIGURES

Every table must bear a title and table number which should be written on the top
of the table (Table 1: Abc)
Titles of the figures should be written under the figures, along with the figure
number (Figure 1: Xyz)

1.4 REFERENCES

All of the references should be alphabetically ordered

1.4.1 Journals

Author Name/s (Surname, initial), year of publication in-parenthesis, title of the article, name of the journal, volume number, issue number (in parenthesis) followed by a colon and page numbers

1.4.2 Books

Author Name/s (Surname, initial), year of publication in-parenthesis, title of the book, publisher's name, place of publication, page numbers

1.4.3 Reference from Internet

Name of the Author/s (If Known), Title of the topic followed by complete web address

Chapter 2

LITERATURE REVIEW

Provide an overview to the projects background knowledge without too much in detail (stick to the scope of the project). The background can refer to previous work referenced from journals, articles, newspapers, or

any academic literature providing evidence that the proposed problem is significant and real problem worth solving.

If available, provide closely related work done within the project scope and the challenges or defects identified which can be considered as part of the new solution.

Describe why you worked on this project in light of the literature review?

PROBLEM DEFINITION

METHODOLOGY

The methods, approaches, tools, techniques, algorithms, or other aspects of the solution are sufficiently discussed with sufficient details and supporting figures.

Chapter 5

DETAILED DESIGN AND ARCHITECTURE

5.1 SYSTEM ARCHIECTURE

This section should provide a high-level overview of how the functionality and responsibilities of the system were partitioned and then assigned to subsystems or components.

Don't go into too much detail about the individual components themselves (there is a subsequent section for detailed component descriptions). The main purpose here is to gain a general understanding of how and why the system was decomposed, and how the individual parts work together to provide the desired functionality.

At the top-most level, describe the major responsibilities that the software must undertake and the various roles that the system (or portions of the system) must play. Describe how the system was broken down into its components/subsystems (identifying each top-level component/subsystem and the roles/responsibilities assigned to it). Describe how the higher-level components collaborate with each other in order to achieve the required results. Don't forget to provide some sort of rationale for choosing this particular decomposition of the system (perhaps discussing other proposed decompositions and why they were rejected). Feel free to make use of design patterns, either in describing parts of the architecture (in pattern format), or for referring to elements of the architecture that employ them.

If there are any diagrams, models, flowcharts, documented scenarios or use-cases of the system behavior and/or structure, they may be included here (unless you feel they are complex enough to merit being placed in the Detailed System Design section). Diagrams that describe a particular component or subsystem should be included within the particular subsection that describes that component or subsystem.

5.1.1 Architecture Design Approach

Describe the architectural design approach.

5.1.2 Architecture Design

Provide and describe a figure that depicts the overall system architecture. Develop a modular program structure and explain the relationships between the modules to achieve the complete functionality of the system. This is a high level overview of how responsibilities of the system were partitioned and then assigned to subsystems. Identify each high level subsystem and the roles or responsibilities assigned to it. Describe how these subsystems collaborate with each other in order to achieve the desired functionality. Don't go into too much detail about the individual subsystems. The main purpose is to gain a general understanding of how and why the system was decomposed, and how the individual parts work together.

Provide a diagram showing the major subsystems and data repositories and their interconnections. Describe the diagram if required.

5.1.3 Subsystem Architecture

Provide a decomposition of the subsystems in the architectural design. Supplement with text as needed. You may choose to give a functional description or an object oriented description.

For a functional description, put top level data flow diagram (DFD) and structural decomposition diagrams. For an OO description, put subsystem model, object diagrams, generalization hierarchy diagram(s) (if any), aggregation hierarchy diagram(s) (if any), interface specifications, and sequence diagrams here.

5.2 DETAILED SYSTEM DESING

Most components described in the System Architecture section will require a more detailed discussion. Other lower-level components and subcomponents may need to be described as well. Each subsection of this section will refer to or contain a detailed description of a system software component. The discussion provided should cover the following software component attributes:

5.2.1 Classification

The kind of component, such as a subsystem, module, class, package, function, file, etc. ....

5.2.2 Definition

The specific purpose and semantic meaning of the component. This may need to refer back to the requirements specification.

5.2.3 Responsibilities

The primary responsibilities and/or behavior of this component. What does this component accomplish? What roles does it play? What kinds of services does it provide to its clients? For some components, this may need to refer back to the requirements specification.

5.2.4 Constraints

Any relevant assumptions, limitations, or constraints for this component. This should include constraints on timing, storage, or component state, and might include rules for interacting with this component (encompassing preconditions, post conditions, invariants, other constraints on input or output values and local or global values, data formats and data access, synchronization, exceptions, etc.)

5.2.5 Composition

A description of the use and meaning of the subcomponents which are a part of this component.

5.2.6 Uses/Interactions

Description of component collaboration with other components. What other components is this entity used by? What other components does this entity use (this would include any side-effects this entity might have on other parts of the system)? This concerns the method of interaction as well as the interaction itself. Object-oriented designs should include a description of any known or anticipated subclasses, super classes, and meta classes.

5.2.7 Resources

A description of any and all resources that are managed, affected, or needed by this entity. Resources are entities external to the design such as memory, processors, printers, databases, or a software library. This should include a discussion of any possible race conditions and/or deadlock situations, and how they might be resolved.

5.2.8 Processing

A description of precisely how this components goes about performing the duties necessary to fulfill its responsibilities. This should encompass a description of any algorithms used; changes of state; relevant time or space complexity; concurrency; methods of creation, initialization, and cleanup; and handling of exceptional conditions.

5.2.9 Interface/Exports

The set of services (resources, data, types, constants, subroutines, and exceptions) that are provided by this component. The precise definition or declaration of each such element should be present, along with comments or annotations describing the meanings of values, parameters, etc. .... For each service element described, include (or provide a reference) in its discussion a description of its important software component attributes (Classification, Definition, Responsibilities, Constraints, Composition, Uses, Resources, Processing, and Interface).

Much of the information that appears in this section is not necessarily expected to be kept separate from the source code. In fact, much of the information can be gleaned from the source itself (especially if it is adequately commented). This section should not copy or reproduce information that can be easily obtained from reading the source code (this would be an unwanted and unnecessary duplication of effort and would be very difficult to keep up-to-date). It is recommended that most of this information be contained in the source (with appropriate comments for each component, subsystem, module, and subroutine). Hence, it is expected that this section will largely consist of references to or excerpts of annotated diagrams and source code. Any referenced diagrams or source code excerpts should be provided at any design reviews.

5.2.10 Detailed Subsystem Design

Provide a detailed description of this software component (or a reference to such a description). Complex diagrams showing the details of component structure, behavior, or information/control flow may be included in the subsection devoted to that particular component (although, unless they are very large or complex, some of these diagrams might be more appropriately included in the System Architecture section. The description should cover any applicable software component attributes (some of which may be adequately described solely by a source code declaration or excerpt).

5.3   CLASS DIAGRAM

5.4   ER DIAGRAM

Chapter 6

IMPLEMENTATION AND TESTING

Explain the methods, tools and techniques used to develop the software. What kind of software and testing methodologies implemented. Explain core functionalities in narrative format. Controlled libraries, templates, code walkthroughs,

Explain how the proposed software has been evaluated and compared at runtime with the original specifications. The Accuracy, Performance and Scalability of the proposed software must be critically analyzed and should solve identified problem statement.

RESULTS AND DISCUSSION

A comprehensive evaluation of the solution is presented with supporting figures and graphics.

System testing is performed through a strong testing strategy and the test cases cover all the use cases.

Chapter 8

CONCLUSION AND FUTURE WORK

Include a brief summary of how the proposed solution is going to/has addressed the problem statement specified in the introduction section. Provide an overview of what kind of evaluations were undertaken in order to prove that the solution really solves the problem with evidence on results findings.

Provide an overview of the recommendations and Include a future directions which is required as part of the future work.

REFERENCES

A comprehensive list of references is cited using a standard format.

FYP Final Report Evaluation Form and Rubrics

Criteria	1 (Marks 0-1)	2 (Marks 2-4)	3 (Marks 5-7)	4 (Marks 8-9)	5 (Marks 10)
R1 **Abstract**	Abstract is not written or written in a vague form	Abstract is written in an ordinary way. The important results are not clear to a reader who is unfamiliar.	Abstract provides a reasonable description of the project but can be improved	The abstract provides a good overview of the project and results in two pages or less.	Abstract is excellently written according to the scientific writing standards and provides a good summary in two pages or less
R2 **Literature Review,** **References**	Literature Review is not written or written in a vague form. The list of references is clearly inadequate.	Ligature Review is written in an ordinary way. The review material i.e. research papers or web material is not at all clear to a reader who is unfamiliar. The list of references should be expanded	Literature review provides a reasonable description of the project background and its significance but can be improved. Number of research papers/ web material needs to be added more. The list of references appears reasonable but citation does not follow standard format.	The review provides a good background and details of the literature. However, it is not written in scientific writing standards for review. The list of references appears reasonable and citation follow standard format	Literature review is excellently written according to the scientific writing standards and covers maximum of the research papers/web material related to project. A comprehensive list of references is cited using a standard format
R3 **Problem Statement**	Problem statement is not stated at all or vaguely stated	Problem statement is stated but not entirely clear.	Problem statement is stated but lacks necessary justification in light of the literature review.	Problem statement is stated and covers necessary justification with reference to the literature review.	Problem statement is stated and covers sufficient justification. New reader can clearly understand its value and context
R4 **Methodology**	The approach taken to solve the problem is not discussed.	Some aspects of the solution are discussed briefly but much of the description is left out.	The methods, approaches, tools, techniques, algorithms, or other aspects of the solution are discussed but not is a convincing manner. Much is	The methods, approaches, tools, techniques, algorithms, or other aspects of the solution are sufficiently discussed.	The methods, approaches, tools, techniques, algorithms, or other aspects of the solution are sufficiently discussed with sufficient details and supporting

			left to the readers' imagination.		figures.
R5 **System Architecture**	System architecture is not included at all or vaguely stated	System architecture is included but entirely poor way. No architecture design approach is stated. Subsystem architecture is not mentioned. Neither functional description nor object oriented description is included	System architecture is included in ordinary way. Architecture design approach is stated. However, it is missing the required details. Subsystem architecture is also not clear and missing few important information. Functional description or object oriented description is included; however, required diagrams are missing	System architecture is included in good way. Architecture design approach is stated and clear. Subsystem architecture is also clear. Functional description or object oriented description is included along with required diagrams. However, there is still need to add more details and further improvements are required	System architecture is included in excellent way. Architecture design approach is stated and clear. Subsystem architecture is also added in excellent way. Functional description or object oriented description is included along with required diagrams. There is no need for further improvements
R6 **Detailed system design**	System design is not included at all or vaguely stated	System design is included but entirely in poor way. No low-level components and subcomponents are stated. Also class diagram and ER diagrams are missing	System design is included in ordinary way. Low-level components and subcomponents are described but, it is missing the required details. Also class diagram and ER diagram are ordinary designed	System design is included in good way. Low-level components and subcomponents are described with adequate details. Also class diagram and ER diagram are good. Subcomponents are described according to software component attributes i.e. classification, definition and responsibilities etc. However, does not cover all the ten attributes	System design is included in excellent way. Low-level components and subcomponents are described with very good details. Also class diagram and ER diagram are drawn according to UML standards. Subcomponents are described according to software component attributes i.e. classification, definition and responsibilities etc. And it cover all the ten attributes
R7 **Implementation**	System implementation and	System implementation is included but entirely in	System implementation is included in ordinary way.	System implementation is added in good way and provides	System implementation is added in excellent way and provides all

and Testing	testing is not included at all or vaguely stated	poor way. Very little description is added. No system testing is performed	However, Testing is not adequate enough to test the entire system	all the necessary details for the reader. System testing is performed in good way. Various test cases are generated and details are included; however, further improvements are required regarding the number and quality of test cases	the necessary details for the reader. System testing is performed in very good way. Various test cases are generated and details are included. No further improvements are required regarding the number and quality of test cases
R8 **Results**	Results and evaluation of the solution are not provided.	Results and Evaluation of the solution are briefly discussed without supporting figures and graphics. Evaluation test cases do not cover all the use cases.	Results and Evaluation of the solution are discussed with few supporting figures and graphics Evaluation performed using weak testing strategy.	Results and Evaluation of the solution are discussed with supporting figures and graphics. Evaluation test cases cover all the use cases. Deployment plan is presented	A comprehensive evaluation of the solution is presented with supporting figures and graphics. System testing is performed through a strong testing strategy and the test cases cover all the use cases. Their results are added properly
R9 **Conclusion and future work**	Conclusion does not present the essential project contribution and results. No recommendations for follow-up work given.	Essential project results are not clearly stated. Recommendation for future work is incomplete.	Conclusions are largely qualitative rather than quantitative. The discussion of strengths and limitation could be expanded. Recommendations for future work are given but not clearly thought-out.	Most important results and contribution are presented. Strengths and limitations of the final design are discussed. Some cost information is included. A good set of recommendations for future work is provided. Reflections on the design process are included.	Conclusions provide a succinct summary of all essential results. Results are summarized quantitatively as well as qualitatively. The discussion of strengths and limitations is insightful and objective. Useful final cost information is provided. A clear and complete set of

				recommendations for follow-up work is provided. A succinct evaluation of the design process is provided.
R10 **Language and Grammar,** **Formatting Style**	A lot of spelling and grammatical mistakes Writing is not understandable. Improper format and style. Table of content missing.	Frequent spellings and grammatical errors that impede the reading flow. Writing is in need of significant editing and improvement. The formatting of the chapters may need improvement.	Occasional spellings and grammatical errors Writing is acceptable but not entirely clear. Formatting style is proper but figures and tables don't follow standard practice (caption figure number etc.)	Occasional spellings and grammatical errors that have only minor impact on flow of reading. Writing is overall clear. Organization is good. Content is supported by good number of figures and tables. Formatting style of chapters, table of contents, title page, references and appendices are proper.	Almost no spelling or grammatical mistake. Writing is easy to read. Excellent organization. Writing is concise yet all necessary content is included. Content is supported by good number of figures and tables. Formatting style of chapters, table of contents, title page, references and appendices are proper and relevant.

FYP Final Report Evaluation Form

Project Title   _____

Student Names   _____

PLO	S No	Description	Weight	Performance (1 – 5)					Marks
PLO-10: Communication	R1	**Abstract**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-2: Problem Analysis	R2	**Literature Review, References**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-2: Problem Analysis	R3	**Problem Statement**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-4: Investigation	R4	**Methodology**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-3: Design/ Development of Solution	R5	**System Architecture**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-3: Design/ Development of Solution	R6	**Detailed system design**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-5: Modern Tool Usage	R7	**Implementation and Testing**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-4: Investigation	R8	**Results**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-4: Investigation	R9	**Conclusion and future work**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R10	**Language and Grammar, Formatting Style**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	

Evaluator Name: _____   Signature (Date): _____

Comments   _____

_____

Commented [rSa4]: Dr. Ajmal Please define the proper weightages

FYP Final Demonstration Evaluation Form and Rubrics

Criteria	1 (Marks 0-1)	2 (Marks 2-4)	3 (Marks 5-7)	4 (Marks 8-9)	5 (Marks 10)
R1 **Completeness and Accuracy**	The system failed to produce the right accurate results	The system execution led to inaccurate or incomplete results. It was not correctly functional or not all the features were implemented.	The system was correctly functional and most of the features were implemented	The system was correctly functional and all of the features were implemented	The system was correctly functional and all of the features were implemented. It was demonstrated how the real world problem was solved
R2 **Coding Standards**	Coding standards, best programming practices are not followed. Students cannot understand the code.	Coding standards, best programming practices are not followed.	Coding standards, best programming practices are rarely followed.	Coding standards, best programming practices are followed appropriately	Coding standards, best programming practices are followed extensively
R3 **Ways of Demonstration**	The system does not fulfill the functional requirements.	It is not clearly demonstrated how the system fulfills its functional requirements	It is demonstrated how the system fulfills some of its functional requirements	It is demonstrated how the system fulfills most of its functional requirements	It is clearly and effectively demonstrated how the system fulfills all of its functional requirements
R4 **Quality**	Student is unaware of System's non-functional requirements	System's non-functional requirements (as mentioned in SRS) are not demonstrated	Some of the system's non-functional requirements are demonstrated	Most of the system's non-functional requirements are demonstrated	All of the system's non-functional requirements are clearly demonstrated
R5 **Originality**	Most part of the working product is copied.	Working product is uninspired and straightforward work with little to no creative potential.	Working product has some potential for making a creative contribution.	Working product has some creative /original /inventive element and a potential for making a creative contribution	Working product has several creative /original /inventive /innovative elements and a clear potential for making a creative contribution.

R6 Modern Tool Usage	Modern engineering software were not used, where applicable, to solve complex engineering problems.		Computer-based tools and technical software were used, but more could have been used to solve the problem.		Modern computer-based tools and software were used extensively in the project. New software/language was learned as needed

FYP Demonstration Evaluation Form

Project Title   _____

Student Names   _____

PLO	S No	Description	Weight	Performance (1 – 5)					Marks
PLO-11: Project Management	R1	**Completeness and Accuracy**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-3: Design/ Development of Solution	R2	**Coding Standards**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R3	**Ways of Demonstration**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-3: Design/ Development of Solution	R4	**Quality**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-8: Ethics	R5	**Originality**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-5: Modern Tool Usage	R6	**Modern Tool Usage**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	

Commented [rSa5]: Dr. Ajmal Please define the proper weightages

Evaluator Name: _____   Signature (Date) : _____

Comments   _____

_____

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FYP Defense Oral Presentation Evaluation Form and Rubrics

Criteria	1 (Marks 0-1)	2 (Marks 2-4)	3 (Marks 5-7)	4 (Marks 8-9)	5 (Marks 10)
R1 **Subject Knowledge**	Student has no knowledge of both problem and solution. Cannot answer basic questions.	Student does not have grasp of information; student cannot answer questions about subject	Student is uncomfortable with information and is able to answer only rudimentary questions	Student has competent knowledge and is at ease with information. Can answer questions but fails to elaborate.	Student has presented full knowledge of both problem and solution. Answers to questions are strengthen by rationalization and explanation
R2 **Organization and Content of Presentation**	Student is clueless about the content of his presentation.	Information is arranged in confused and unstructured way. Key points are not covered. The contents are hard to understand and interpret.	Information articulated clearly but it is difficult to follow the presentation. All key points are covered but no use of charts, graphs, figures etc., to explain salient points.	Information articulated clearly and the flow is reasonable All key points are covered but limited use of charts, graphs, figures etc., to explain salient points.	Information articulated clearly and is organized in a structured way with logical flow between parts. All key points are covered. Enhances presentation and keeps interest by effective use of charts, graphs, figures etc., to explain salient points.
R3 **Delivery &** **Presentation Skills**	Presentation was not clear at all. Language was not appropriate	Holds no eye contact with audience, as entire report is read from notes Speaks in low volume and/ or monotonous tone, which causes	Displays minimal eye contact with audience, while reading mostly from the notes Speaks in uneven volume with little or no inflection	Consistent use of direct eye contact with audience, but still returns to notes Speaks with satisfactory variation of volume and inflection	Holds attention of entire audience with the use of direct eye contact, seldom looking at notes Speaks with fluctuation in volume and inflection to maintain audience interest and

		audience to disengage			
R4 **Completeness of Project,** **Timeline**	The project could not be completed.	Some of the major features are complete but the timeline for project was not followed.	Major features of the project are completed. However, the timeline was not followed	Most features of the project were completed and timeline as defined in the proposal was followed	The project is completed in the timely manner with all features implemented according to the timeline defined in project proposal.
R5 **Professional ethical values**	The student never reported to his supervisor	Student reported occasionally to his supervisor. The student did not follow the timeline.	Student had few meetings. More are required. Some time he came prepared, other times he was not prepared.	Student held regular meetings with his supervisor.	Student held regular meetings with his supervisors and committee members. He reported his progress regularly
R6 **Team Work**	Only one member did all the work. Conflicts between the group members were clearly visible.	Only one member did all the work. Other members could not answer basic questions about the project.	Not all members contributed to the project. Work division is not mentioned.	All members contributed to the project. Cooperation between group members was reasonable. Work division is mentioned	All members contributed to the project. Any conflicts within the group members were amicably resolved. Work division is clearly mentioned.

FYP Defence Oral Presentation Evaluation Form

Project Title _____

Student Names _____

PLO	S No	Description	Weight	Performance (1 – 5)					Marks
PLO-1: Computing Knowledge	R1	**Subject Knowledge**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R2	**Organization and Content of Presentation**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R3	**Delivery & Presentation Skills**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-11: Project Management	R4	**Completeness of Project, Timeline**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-8: Ethics	R5	**Professional ethical values**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-9: Individual & Team Work	R6	**Team Work**	**10**	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	

Evaluator Name: _____ Signature (Date): _____

Comments _____

_____

Commented [rSa6]: Dr. Ajmal Please define the proper weightages

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Template

Title of your Poster Presentation

Student Name(s), Advisor, co-advisor name

Abstract

This section provides an overview of your project so that the people reading your poster know what you did.

Heading 2 (Background and Project Objectives)

This section gives the background of the problem and current solutions (literature review). The reader should be able to understand the contributions of the project and why you have undertaken it. What unmet need or problem the project solves. Use combination of figures/graphics and text

Heading 3 (Research Methods / Development methodology)

This section describes the method and approach you have taken to tackle the problem. Use figures/graphics to help the reader.

Heading 4 (Results)

Be brief and include only the most important findings and results

Use a combination of text and graphics.

All figures must be accompanied by captions

Heading 5 (Conclusions and Discussion)

Provide a succinct summary of all the essential results

Give recommendations for follow-up work

References

FYP Project Exhibition Poster Evaluation Form and Rubrics

Criteria	1 (Marks 0-1)	2 (Marks 2-4)	3 (Marks 5-7)	4 (Marks 8-9)	5 (Marks 10)
R1 **Overall Appearance** RULE: Use a light background color, solid non-gradient fill pattern; 2 or 3 font colors; dark text on light background best. White Space: Don't create large, monolithic blocks of text Text / Graphics Balance:	Cluttered or sloppy appearance. Gives the impression of a solid mass of text & graphics, or scattered and disconnected pieces. Impression of solid mass of text and graphics Too much text. An overwhelming impression of text only. OR Not enough text. Cannot understand what the graphics are supposed to	In between	Pleasant to look at. Pleasing use of colors, text, and graphics. Some separation between sections. Balanced text & graphics are evenly dispersed in the poster. But there is not enough text to explain graphics.	In between	Very pleasing to look at. Particularly nice colors & graphics. WINNER: An effective visual display of data… an "illustrated abstract." Sections of the poster are separated from one another Text & graphics are evenly dispersed in the poster. Enough text used to explain the graphics.
R2 **Organization & Flow** RULE: Use headings in contrasting color; use 3 or 4 column format for flow.	Cannot figure out how to move through poster.	In between	Implicit flow used by making headings stand out (Methods, etc)	In between	Explicit numbering used or columns used to indicate logical flow (top to bottom, then L to R)
R3 **Research Objective / Project Objectives** RULE: Tell readers why your work matters!!	Can't find.	In between	Present, but not explicit. Buried at end of "Introduction" or "Background."	In between	Explicit. This includes headings of "Objectives", "Aims", "Goals", etc.

R4 **Research Method / Development Methodology** RULE: Tell reader about the design and development; tools technologies and methodologies used in project development	Cannot figure out	In between	Partial or incomplete. Not enough information to comprehend method and main variables in the study, especially the outcome variable.	In between	Complete. This includes design and development; tools technologies and methodologies used in project development
R5 **Results** RULE: Share just the main results relevant to the research objectives/aims.	Can't find	In between	Present, but not explicit. May be embedded in monolithic blocks of text.	In between	Explicitly labeled. Uses heading, e.g. "Main Points", "Conclusions", "Results"
R6 **Discussion/Conclusion /Recommendation** RULE: Interpret findings, summarize and recommend, what's next…	None	In between	Present, but not explicit. A summary is given under the "Conclusion." No "Discussion" or "Implication."	In between	Explicitly labeled. "Discussion", "Conclusions", and "Implications" heading is used and stands out.

FYP Project Exhibition Poster Evaluation Form

Project Title   _____

Student Names   _____

PLO	S No	Description	Weight	Performance (1 – 5)					Marks
PLO-10: Communication	R1	Overall Appearance	10	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R2	Organization & Flow	10	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R3	Research Objective / Project Objectives	10	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R4	Research Method / Development Methodology	10	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R5	Results	10	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	
PLO-10: Communication	R6	Discussion/Conclusion /Recommendation	10	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	

Evaluator Name: _____   Signature (Date): _____

Comments   _____

_____

Commented [rSa7]: Dr. Ajmal Please define the proper weightages

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OVERALL PROJECT EVALUATION FORM

Project Name _____   Table # _____

	S No	Description	Weight	Performance (0 – 10)	Marks
PLO-6	1	How well does the project solve an industry/social/local problem?	**20**	Fail ☐ Below Average ☐ Average ☐ Good ☐ Excellent ☐	
PLO-3	2	Quality of the System level design work?	**10**	Fail ☐ Below Average ☐ Average ☐ Good ☐ Excellent ☐	
	3	Commercialization potential of the project	**20**	Fail ☐ Below Average ☐ Average ☐ Good ☐ Excellent ☐	
PLO-10	4	**DEMONSTRATION** How well are the interactions between Software & Hardware defined and implemented?	**10**	Fail ☐ Below Average ☐ Average ☐ Good ☐ Excellent ☐	
	5	**POSTER** Creativity, Clarity, layout	**10**	Fail ☐ Below Average ☐ Average ☐ Good ☐ Excellent ☐	
PLO-3	6	**END PRODUCT QUALITY** H/W Projects: Physical Design, Finishing S/W Projects: UI Design, Completeness Research Project: Results, Completeness	**20**	Fail ☐ Below Average ☐ Average ☐ Good ☐ Excellent ☐	
PLO-1	7	Did the student understand and answer your questions completely and appropriately?	**10**	Fail ☐ Below Average ☐ Average ☐ Good ☐ Excellent ☐	

Commented [rSa8]: Dr. Ajmal Please define the proper weightages

Name (judge) _____   Company _____   Signature (with Date)_____

Comments _____

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Annex-G

Meeting Minutes

Project Code:	
Project Name:	
Project Supervisor:	

	Internal	
	External	

Project Manager:			
Date of Meeting: (MM/DD/YYYY)		**Location:**	
Minutes Prepared By:		**Duration**	

1.1.1 1. Purpose/Agenda of Meeting

1.1.2 2. Attendance at Meeting *(add rows as necessary)*

Name	Designation

1.1.3 3. Meeting Notes, Decisions, Issues

1.1.4 4. Action Items *(add rows as necessary)*

Action	Assigned to	Due Date

1.1.5 5. Next Meeting

Date: (MM/DD/YYYY)		Time:		Location:	
Agenda:					

Annex-H

Guidelines for Report Format

1. The first two pages (Title Page and Certificate) of the report should not include any number
2. The subsequent preliminary pages, i.e. Table of Contents, List of Figures, List of Tables, Exordium, Dedication, Acronyms and Abbreviations, Abstract pages should include numbers in consecutive lower case Roman numerals (i, ii, iii, etc)
3. All Chapters Titles should be written in the Capital (e.g., CHAPTER 1, INTRODUCTION (Size: 12)
4. Font: Times New Roman throughout the report
5. Size: 12 throughout the report (except the figure and table captions)
6. Line spacing: 1.5 in throughout the text of report
7. Line spacing: 1.0 in the text of the tables throughout the report
8. Margins:
   Top (1 inch)
   Right (1 inch)
   Left (1.5 inch)
   Bottom (1inch)

9. Figures and Tables should maintain the quality in terms of visibility and readability of contents
10. Report should be printed on one side of the A4 size page
11. Figure caption should be included at its bottom side of the page (caption size: 10)
12. Table caption should be included at its top side of the page (caption size: 10
13. It is advisable to use numbers for Chapters and its headings (e.g. 5.1), sub-headings (e.g. 5.1.1) and sub-sub headings (e.g. 5.1.1.1). The sub-sub headings should include *Italic format*
14. Similarly, Tables and Figures should be presented for chapters as Table 1.1, Table 1.2 or Figure 1.1. Figure 1.2 and so on for subsequent chapters
15. References or bibliography should be presented in IEEE format (Size: 10)
16. Appendix should be included in report (if any)

References

[1] NUST FYP report (www.nust.edu.pk)

[2] IBA Karachi FYP report (www.iba.edu.pk)