Software Engineering Project Documentation

Feminine 360

SUBMITTED TO: **Miss Hira Anwar**

SE

SE PROJECT DOCUMENTATION

This Document contains:

- **PROPOSAL**
- **RTM**
- **FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS**
- **SCHEDULING**
- **RISKS**
- **CALIBRATION**
- **COSTING**
- **PROJECT**

Submitted to: Miss Hira Anwar Khan – (BSCS) – Pakistan Air Force – Karachi Institute of Engineering and Technology – North Nazimabad Campus

Submitted in the Partial Fulfillment of the course i.e. SE (Software Engineering)

By

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Under the Guidance of

Miss Hira Anwar

Faculty Software Engineering (SE)

Declaration

We hereby declare that the project entitled FEMININE 360 is the actual work carried out by us in the course of Software Engineering (COCIS) under the guidance of Miss Hira Anwar Khan (Faculty COCIS)

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Chapter 1

PROPOSAL

INTRODUCTON:

As an independent nation, we must ensure respect and security of women and we cannot deny them this basic right. It is now time to initiate action to eradicate the menace of security issues as well as the issues that are still considered taboo in our society with women.

In recent times women and gender equality have gone hand to hand and have been a topic of discussion. Our society is divided into two factors

1. Allow women to compete in the society and earn bread.
2. Let women stay at home and be a homemaker.

In both the cases we can not outlook the tensions and daily struggles a woman has to go through daily whether she is at home or outside.

To tackle this problem, we came up with a proposed website that we believe can become a woman's hand on guide to her daily routine and the problems that come with it. This application will provide a complete guide to women about her health and can boost her self confidence as well.

ABOUT THE PROJECT:

In this proposed website a woman can check on her upcoming menstrual cycle by telling the application about her previous menstrual cycle date and the duration of it, stay fit through learning exercises such as yoga, learn about pregnancy and check guidelines on how take care of herself during those months.

Moreover this website will be designed using HTML/CSS with back-end being Java Script

Chapter 2

2.1 BRD

BUSINESS REQUIREMENTS:

This is a site targets basically at dealing with woman hygiene and health related stuff. This site and the features included does not require the user to register or sign-in so that it can be used by both new and existing users without any hassle.

1. Period Calendar.

This feature will help you predict your next cycle easily. Our easy tracking tool helps map out your cycle for the upcoming 3 months.

2. Pregnancy Guidelines.

Our website will provide the ultimate pregnancy diet guide from month 1 to month 9. What to eat in each month of your pregnancy for optimum nutrition and healthy and how to take care of yourself and the baby

3. Yoga Exercises.

This feature in our website will allow the users to perform the yoga postures by clicking the image. Moreover, there will be a timer which will help the users for how much time they should perform the posture.

2.2 FSD

FUNCTIONAL SPECIFICATIONS:

1. Period Calendar.

- There is no need for login or sign up
- The user needs to enter her last period date, her menstrual cycle duration and how long does a period last.
- User will be displayed with the predictions of the next 3 cycles with pre , post and peak ovulation dates.

2. Pregnancy Guidelines.

- Month by month guidelines for new and existing/experienced users.
- Complete diet plan and foods to avoid during these months for the users.
- User can get to know more about how the baby is developing and how to take care of yourself in these months.

3. Yoga Exercises.

- For beginners there are instructions on how to perform a specific posture.
- There are also benefits of each posture for both beginners and experts.
- For both beginners and experts there is a timer which will allow the user to know for how much time they can perform the posture.

Chapter 3

FUNCTIONAL NON-FUNCTIONAL REQUIREMENTS

3.1 SOFTWARE REQUIREMENTS:

The client used is the windows operating system (Windows XP and further) with PC (Core 2 duo or further). The front end is Microsoft Visual Studio 2015/2012. Back end is text filling

3.1.1 Non-Functional Requirements:

1. Performance Requirements:

It will also be run on Pentium 4 but the speed will be slow as compare to required requirements.

2. Safety Requirements:

If the above mention requirements are not available to run this system so there is a chance of crash

3. Security Requirements:

There is access permission is local folder to allow the programmer to access the files' code.

3.1.2 Functional Requirements:

This section gives a functional requirements that are applicable to the Feminine 360. There is basically only one module as our website is user oriented.

1. Customer module.

The functionality of module is as follows:

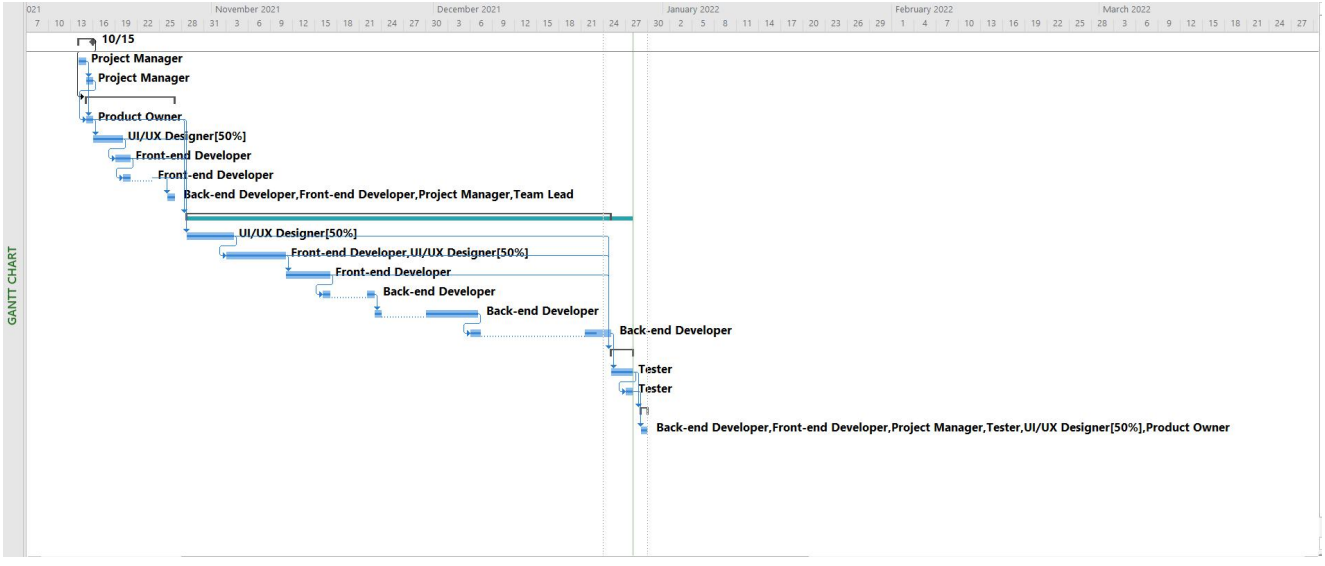
Customer module: The customer will access the site and look up to each feature and then select which feature to explore like get tips month by month for pregnancy, or learn basic yoga postures or track your next 3 month menstrual cycle.

Chapter 4

SCHEDULING

4.1 GANTT CHART:

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Obstacles
1		**Proposal**	**2 days**	**Thu 10/14/21**	**Fri 10/15/21**			
2		Design 1st Proposal	1 day	Thu 10/14/21	Thu 10/14/21		Project Manager	
3		Design 2nd Proposal	1 day	Fri 10/15/21	Fri 10/15/21	2	Project Manager	First Proposal Rejected
4		**Requirements**	**8 days**	**Fri 10/15/21**	**Tue 10/26/21**	**1**		
5		Acceptance of propos	1 day	Fri 10/15/21	Fri 10/15/21	2,3	Product Owner	
6		Search other websites	2 days	Sat 10/16/21	Tue 10/19/21	5	UI/UX Designer[50%]	Time taking
7		Search for content ide	2 days	Tue 10/19/21	Wed 10/20/21	6	Front-end Developer	Time taking
8		Search about each fea	1 day	Wed 10/20/21	Sat 10/23/21	7	Front-end Developer	Was hard to select one idea
9		Software Requirment	1 day	Tue 10/26/21	Tue 10/26/21	8	Back-end Developer,Fr	None
10		**Design**	**41.25 days**	**Thu 10/28/21**	**Fri 12/24/21**	**5,6,7,8**		
11		Decide theme and ima	4.25 days	Thu 10/28/21	Wed 11/3/21	5,6,7	UI/UX Designer[50%]	Was hard to select one
12		Design template	6 days	Wed 11/3/21	Wed 11/10/21	11	Front-end Developer,UI,	Bugs/Errors
13		Content of features	4 days	Thu 11/11/21	Tue 11/16/21	12	Front-end Developer	None
14		Code of yoga feature	2 days	Tue 11/16/21	Mon 11/22/21	13	Back-end Developer	Hard to manage the countdown timer
15		Code of pregnancy gui	6 days	Tue 11/23/21	Mon 12/6/21	14	Back-end Developer	None
16		Code of menstrual fea	5 days	Mon 12/6/21	Fri 12/24/21	15	Back-end Developer	Not able to show "2022" on calendar
17		**Testing**	**1 day**	**Sat 12/25/21**	**Mon 12/27/21**	**11,12,13**		
18		Testing the website	1 day	Sat 12/25/21	Mon 12/27/21	16	Tester	None
19		Making Test Cases	1 day	Mon 12/27/21	Mon 12/27/21	18	Tester	None
20		**Implementation**	**1 day**	**Wed 12/29/2**	**Wed 12/29/21**	**18**		
21		Evaluation	1 day	Wed 12/29/21	Wed 12/29/21	19	Back-end Developer,Fr	Depends



4.2 RESOURCE SHEET:

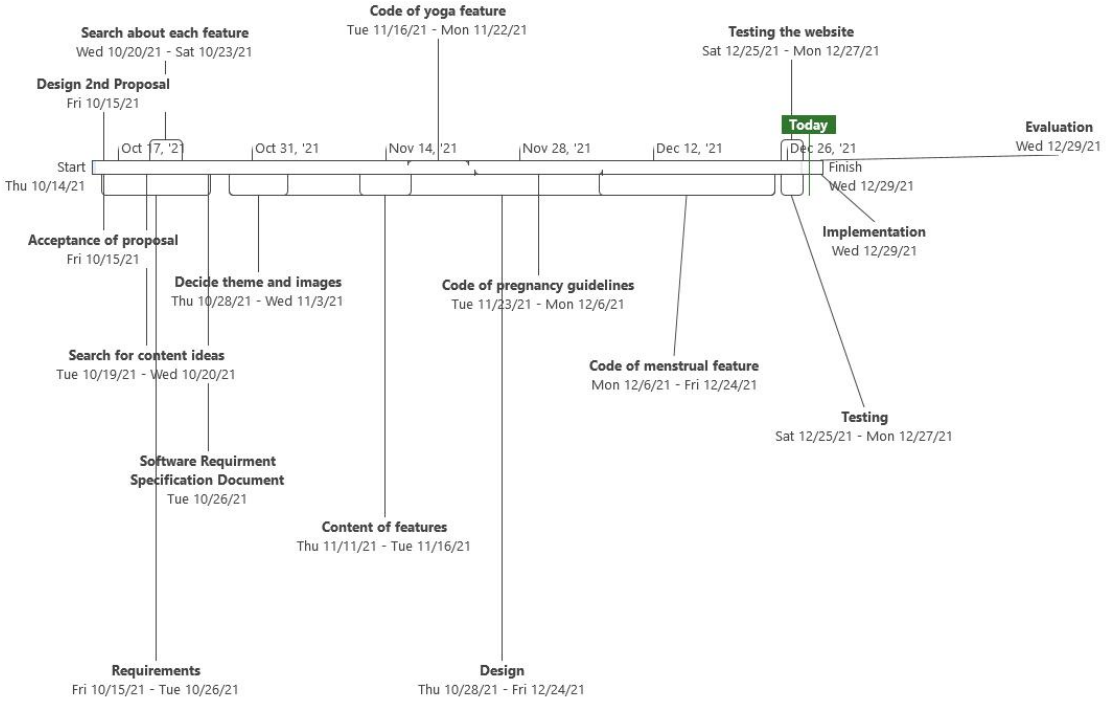
	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt. Rate	Cost/Use	Accrue	Base
1	Product Owner	Work		H		100%	$0.00/hr	$0.00/hr	$0.00	Prorated	Standard
2	Project Manager	Work		F		100%	$60.00/hr	$5.00/hr	$0.00	Prorated	Standard
3	Team Lead	Work		F		100%	$40.00/hr	$4.50/hr	$0.00	Prorated	Standard
4	UI/UX Designer	Work		A F		50%	$20.00/hr	$3.50/hr	$0.00	Prorated	Standard
5	Front-end Develope	Work		F A		100%	$25.00/hr	$2.50/hr	$0.00	Prorated	Standard
6	Back-end Develope	Work		F A		100%	$35.00/hr	$2.00/hr	$0.00	Prorated	Standard
7	Tester	Work		F A		100%	$15.00/hr	$1.50/hr	$0.00	Prorated	Standard

4.3 RESOURCE USAGE:

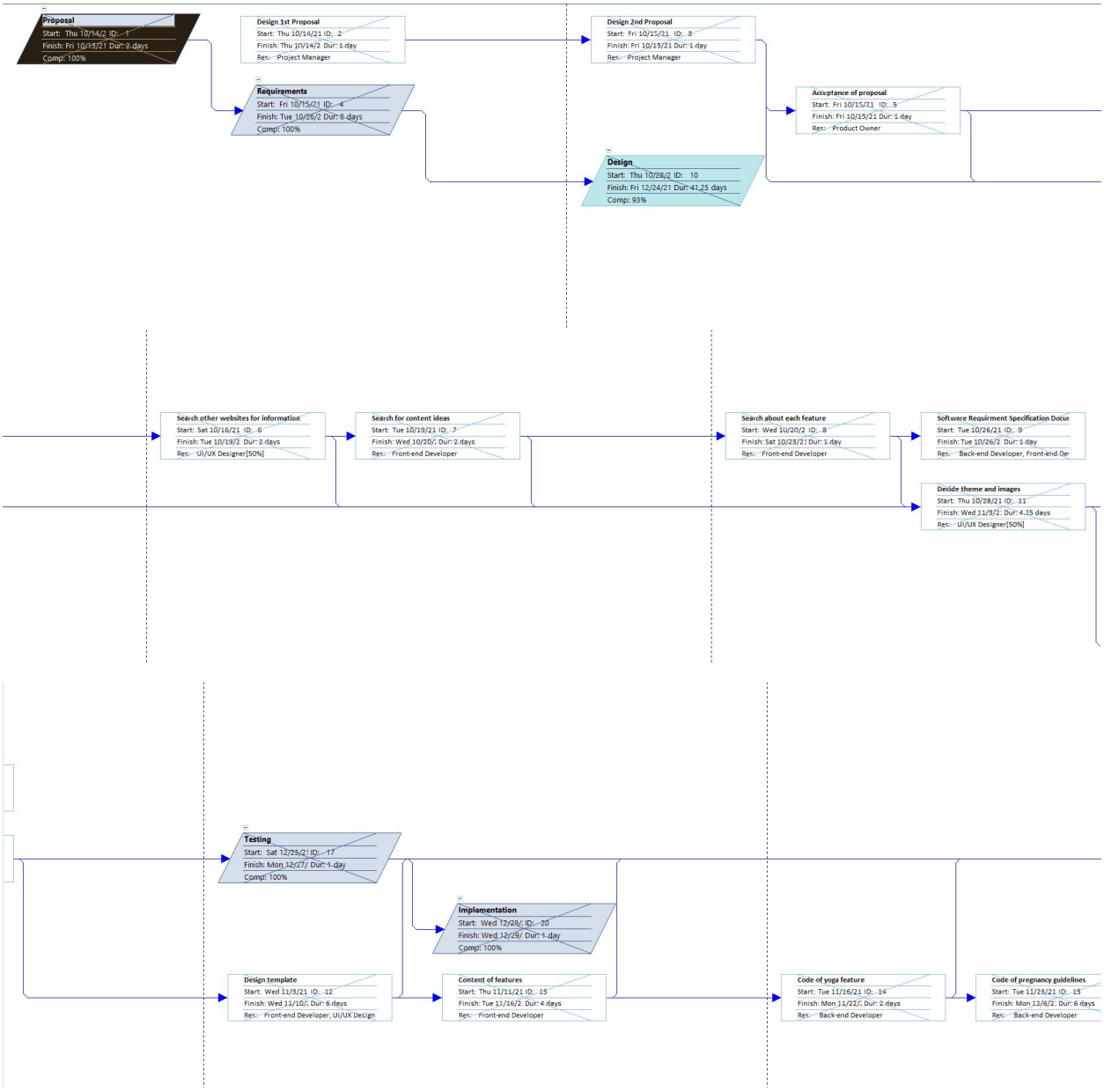
	Resource Name	Work
6	Back-end Developer	120 hrs
5	Front-end Developer	78 hrs
1	Product Owner	16 hrs
2	Project Manager	32 hrs
3	Team Lead	8 hrs
7	Tester	17 hrs
4	UI/UX Designer	49 hrs

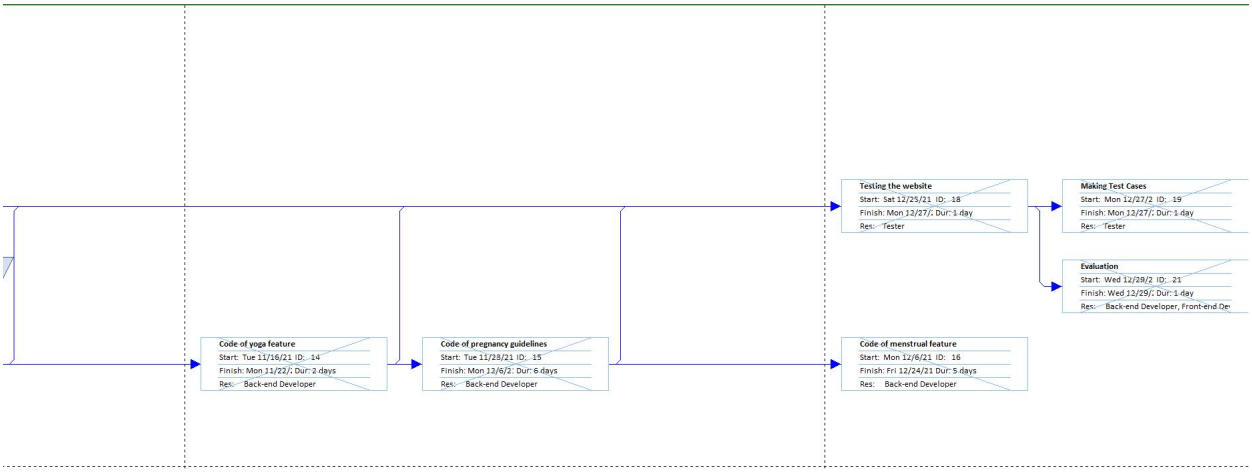
RESOURCE NAME	WORK
Back-end Developer	120 hrs
Software Requirment Specification Document	*8 hrs*
Code of yoga feature	*16 hrs*
Code of pregnancy guidelines	*48 hrs*
Code of menstrual feature	*40 hrs*
Evaluation	*8 hrs*
Front-end Developer	78 hrs
Search for content ideas	*16 hrs*
Search about each feature	*8 hrs*
Design template	*6 hrs*
Content of features	*32 hrs*
Software Requirment Specification Document	*8 hrs*
Evaluation	*8 hrs*
Product Owner	16 hrs
Acceptance of proposal	*8 hrs*
Evaluation	*8 hrs*
Project Manager	32 hrs
Design 1st Proposal	*8 hrs*
Design 2nd Proposal	*8 hrs*
Software Requirment Specification Document	*8 hrs*
Evaluation	*8 hrs*
Team Lead	8 hrs
Software Requirment Specification Document	*8 hrs*
Tester	17 hrs
Testing the website	*8 hrs*
Making Test Cases	*1 hr*
Evaluation	*8 hrs*
UI/UX Designer	49 hrs
Decide theme and images	*13 hrs*
Search other websites for information	*8 hrs*
Design template	*24 hrs*
Evaluation	*4 hrs*

4.4 TIMELINE:


Code of yoga feature
Tue 11/16/21 - Mon 11/22/21
Search about each feature
Wed 10/20/21 - Sat 10/23/21
Testing the website
Sat 12/25/21 - Mon 12/27/21
Design 2nd Proposal
Fri 10/15/21
Today
Evaluation
Wed 12/29/21
Oct 17, '21
Oct 31, '21
Nov 14, '21
Nov 28, '21
Dec 12, '21
Dec 26, '21
Start
Thu 10/14/21
Finish
Wed 12/29/21
Implementation
Wed 12/29/21
Acceptance of proposal
Fri 10/15/21
Decide theme and images
Thu 10/28/21 - Wed 11/3/21
Code of pregnancy guidelines
Tue 11/23/21 - Mon 12/6/21
Search for content ideas
Tue 10/19/21 - Wed 10/20/21
Code of menstrual feature
Mon 12/6/21 - Fri 12/24/21
Testing
Sat 12/25/21 - Mon 12/27/21
Software Requirment
Specification Document
Tue 10/26/21
Content of features
Thu 11/11/21 - Tue 11/16/21
Requirements
Fri 10/15/21 - Tue 10/26/21
Design
Thu 10/28/21 - Fri 12/24/21

4.5 NETWORK DIAGRAM:




Testing the website
Start: Sat 12/25/21 ID: 18
Finish: Mon 12/27/ Dur: 1 day
Res: Tester
Making Test Cases
Start: Mon 12/27/2 ID: 19
Finish: Mon 12/27/ Dur: 1 day
Res: Tester
Evaluation
Start: Wed 12/29/2 ID: 21
Finish: Wed 12/29/ Dur: 1 day
Res: Back-end Developer, Front-end De
Code of yoga feature
Start: Tue 11/16/21 ID: 14
Finish: Mon 11/22/ Dur: 2 days
Res: Back-end Developer
Code of pregnancy guidelines
Start: Tue 11/23/21 ID: 15
Finish: Mon 12/6/2 Dur: 6 days
Res: Back-end Developer
Code of menstrual feature
Start: Mon 12/6/21 ID: 16
Finish: Fri 12/24/21 Dur: 5 days
Res: Back-end Developer

Chapter 5

CALIBRATION

5.1 SPECIFIC AND ACCUMULATED MRE:

Feature	Estimate	Actual	Raw Error	Feature MRE
Feature 1	1	1	0	0%
Feature 2	1	2	-1	100%
Feature 3	1	1	0	0%
Feature 4	2	1	1	100%
Feature 5	2	1	1	100%
Feature 6	2	3	-1	100%
Feature 7	1	1	0	0%
Feature 8	3	4	-1	100%
Feature 9	6	7	-1	100%
Feature 10	4	5	-1	100%
Feature 11	6	7	-1	100%
Feature 12	6	4	2	200%
Feature 13	9	11	-2	200%
Feature 14	1	1	0	0%
Feature 15	1	1	0	0%
Feature 16	1	1	0	0%
Total	**47**	**51**	**-4**	**1200/16 = 75%**

TOTAL/ACCUMULATED MRE = $\frac{47-50}{50} * 100 = 7.8431$

5.1.1EACH PROCESS MODEL STEP MRE:

Process Model Step	Estimate	Actual	**Raw Error**	**MRE**
Proposal	2	3	-1	33.33%
Requirements	8	7	1	14.285%
Design	41.25	38	3.25	8.552%
Testing	1	2	-1	50%
Implementation	1	1	0	0%
Total	**47**	**51**	**2.25**	**106.167/5= 21.2334**

Chapter 6

6.1 RISKS:

Risk ID	Risk Name	Description	Category	Impact	Probability
1	Some company develop this website system that could be used with a touch screen.	As technology advances and becomes more affordable, a competitor may create a similar application with touch capabilities.	Competition Market	60%	50%
2	The Client's want to change the requirements in the midst.	What are the consequences we have to face when the Client asks for changes in the project while being developed?	Project Manager/Management	70%	30%
3	Developer quits the job	What if we during a project a developer quits	HR/Management	40%	30%

		the job?			
4	Improper budget estimate	What if we miscalculate the budget estimate	Budget	60%	50%
5	Functionalities didn’t Work in a different environment.	What if the project's features didn't operate in a different Environment?	Development process	60%	45%

6.2 RISK EXPOSURE AND RMMM:

Risk Id: Rk1	
Risk Probability	50%
Cost Calculation	Cost Estimation: Cost= SizeOfTheProject x Productivity Cost Rs= 130K * 4 = 520000
Risk cost	Rs. 110000
Risk impact	3
Risk exposure	110000*0.4= Rs. 44000
Risk mitigation	Keep the architecture flexible enough so that new challenges and requirements can be adapted.
Risk monitoring	Keep an eye on the market. What's happening, what is being planned, and look at new releases, leaks, and rumors.
Risk management	If we have made the architecture flexible enough, we can probably with a few support tools and additional functionality can make our application work on touch systems.

Risk Id: Rk2	
Risk Identification	How will we tackle if our clients want a change in the requirement? If some specific requirement that client did not discuss initially and wants us to implement that module in the project.
Risk Probability	30%
Cost Calculation	Average Cost of each module using Organic cocomo estimations = Rs.30,000
Risk cost	Rs. 30000
Risk impact	Consider a scenario where the client did not describe its whole requirement and after the implementation, he wants to add a module to the existing project and if the Module that he ? He wants to implement the project because of structure and versioning e.t.c.
Risk exposure	30000*0.3 = Rs. 9000
Risk mitigation	Use a development process like agile that can help in responding to changes.
Risk monitoring	Clients will tell us the change in requirements.
Risk management	When the client will ask for changes we should design a proper architecture for those changes. Inform the teams and then change the budget and time estimates and inform the stakeholders.

Risk Id: Rk3	
Risk Identification	How will we tackle it if a developer decides to quit their job? If our developer quits the job without any notice or he is not able to work on the project.
Risk Probability	25%
Cost Calculation	Average Cost of each module using Organic cocomo estimations = Rs.27,000
Risk cost	Rs. 27,000
Risk impact	If some specific developer works on the specific module on the project and quits the job or stops working on that module and if the whole project depends on that specific module then we must face the delay because of the dependency of that specific module and because of the time that we have taken to find out the new developer.
Risk exposure	27000*0.25 = 6750
Risk mitigation	Proper documentation of all the codes, and proper commenting of code to make it easier for someone else to work. Create a collective ownership environment so that everyone is responsible for all the code and knows about multiple modules.
Risk monitoring	When someone quits HR will inform upper management.
Risk management	If someone leaves the company, apply rotations. Promote the person after him above and try to recruit someone on a lower level.

Risk Id: Rk4	
Risk Identification	A lot of times projects fail due to the reason that projects exceed the initial estimated budget. What are the consequences we have to face when the budget will exceed the limit?
Risk Probability	50%
Cost Calculation	Total LOC= 3.06K Effort(Using Organic Cocomo)= 8 Persons month Suppose 1 Persons month = Rs. 50,000 Total Cost = Rs. 400000
Risk cost	Rs. 400000
Risk impact	If the project exceeds the budget limit and the client is not agreeing on increasing the budget then the project may get to referent point or we may have to complete the project on our expenses.
Risk exposure	400000*0.5 = 200000
Risk mitigation	Do proper calculations using the cocomo model and after getting the estimates, pad them by increasing the cost estimate.
Risk monitoring	Break down the estimated cost phase-wise and then keep track of whether we are completing each phase in budget or not.
Risk management	If we exceed the budget then we should have some budget saved from the previous phases which might come in handy. Other than that we can try better resource management. Lastly, we should be transparent and clear from our stakeholders and inform them about the issues we are facing.

Risk Id: Rk5	
Risk Identification	What if our project functionalities didn't work in a different environment. If we need to change the environment of the project and the functionalities stopped working in the new environment.
Risk Probability	45%
Cost Calculation	Total LOC= 3.06K Effort(Using Organic Cocomo)= 8 Persons month Suppose 1 Persons month = Rs. 50,000 Total Cost = Rs. 400000
Risk cost	Rs. 400000
Risk impact	If this risk occurs then we will not be able to use the application on different platforms. We either will have to create a new system for each environment or will have to create the application again but this time with support for other platforms.
Risk exposure	400000*0.45 = 180000
Risk mitigation	Create a system architecture flexible enough and UI and other elements responsive
Risk monitoring	Proper testing (compatibility testing, UI testing, etc.) to make sure that the system works the same in all the places and gives no issue.
Risk management	If the system isn't able to perform well on a specific system or screen size then fix the issues accordingly.

Chapter 7

7.1 LOC

- Do you count all code or code used in release only (**All the code included**)
- How do you count code reused from previous versions(**No**)
- How you count third party code (**Yes, to call the libraries that are included**)
- Do you count blank lines and comments (**No**)
- Do you count class interfaces (**No**)
- Do you count data declarations(**Yes**)
- How to count a line broken in multiple lines for readability(**Yes**)

7.2 COST OF PROJECT

Our total LOCs are 3060 so the KLOC will be 3.06

- Effort = $2.4(3.06)^{1.05}$ = 7.766 Persons Month
- Development Time = $2.5(7.766)^{0.38}$ = 5.44 Months
- Average Staff Size = $7.766/5.44$ = 1.4 = 2 persons
- Productivity = 3.06/7.766 = 0.39 KLOC/PM

Here we suppose the average salary of a person is **25000 PKR**, we will multiply the average salary with the effort to calculate the **COST OF PROJECT**

2500 * 7.776 = 194400 PKR

7.2 FUNCTIONAL POINT

I/P	1
O/P	20
EQ	0
ILF	20
EIF	15

WEIGHTING
3
7
4
10
4

UFP = (1*3) + (20*7) + (0*4) + (20*10) + (15*4)

UFP = 403

CAF = 0.65 + 0.01 (14*4)

CAF = 1.21

TOTAL FP = 1.21 * 403

TOTAL FP = 487.63

7.3 COCOMO

7.3.1 COCOMO (BASIC)

We are applying Organic mode because of the factors that include Team Size, Developer Experienced, Environment, Innovation Required.

Our total LOCs are 3060 so the KLOC will be 3.06

- Effort = $2.4(3.06)^{1.05}$ = 7.766 Persons Month
- Development Time = $2.5(7.766)^{0.38}$ = 5.44 Months
- Average Staff Size = $7.766/5.44$ = 1.4 = 2 persons
- Productivity = 3.06/7.766 = 0.39 KLOC/PM

7.3.2 COCOMO (INTERMEDIATE)

We are applying Organic mode because of the factors that include Team Size, Developer Experienced, Environment, Innovation Required.

We are taking LEXP high (0.90), PCAP high (0.86), CPLX low (0.94) and all other cost drivers as nominal

0.90*0.86*0.94*1 = 0.72756 = C

Our total LOCs are 3060 so the KLOC will be 3.06

- Effort = $3.2(3.06)^{1.05} * 0.72756$ = 7.5340 Persons Month
- Development Time = $2.5(7.5340)^{0.38}$ = 5.385 Months
- Average Staff Size = $7.766/5.44$ = 1.3 = 1 persons
- Productivity = 3.06/7.5340 = 0.406 KLOC/PM

7.3.3 COCOMO (DETAILED)

We are applying Organic mode S = 32 because of the factors that include Team Size, Developer Experienced, Environment, Innovation Required.

C = data * cplx * acap * pcap * lexp * modp * sced * all other nominal

C = 0.94 * 1.15 * 0.71 * 1.13 * 1.17 * 1.07 * 0.91 * 1.04 * 1 = 1.02

Our total LOCs are 3060 so the KLOC will be 3.06

- Effort = $3.2(3.06)^{1.05} * 1.027$ = 10.4888 Persons Month

- Development Time = $2.5(10.4888)^{0.38}$ = 6.1066 Months

ED TABLE :

PR	SD	DD	C	I
0.06	0.16	0.24	0.38	0.22
* 10.488				
0.629	1.678	2.5171	3.985	2.307
PR	SD	DD	C	I

DD TABLE :

PR	SD	DD	C	I
0.12	0.19	0.21	0.34	0.26
* 6.1066				
0.732	1.160	1.28	2.07	1.58
PR	SD	DD	C	I

EAFD = 0.3 (DD) + 0.4 (C) + 0.3 (I)

EAFD = 0.3 (2.5171) + 0.4 (3.985) + 0.3 (2.307)

EAFD = 3.03

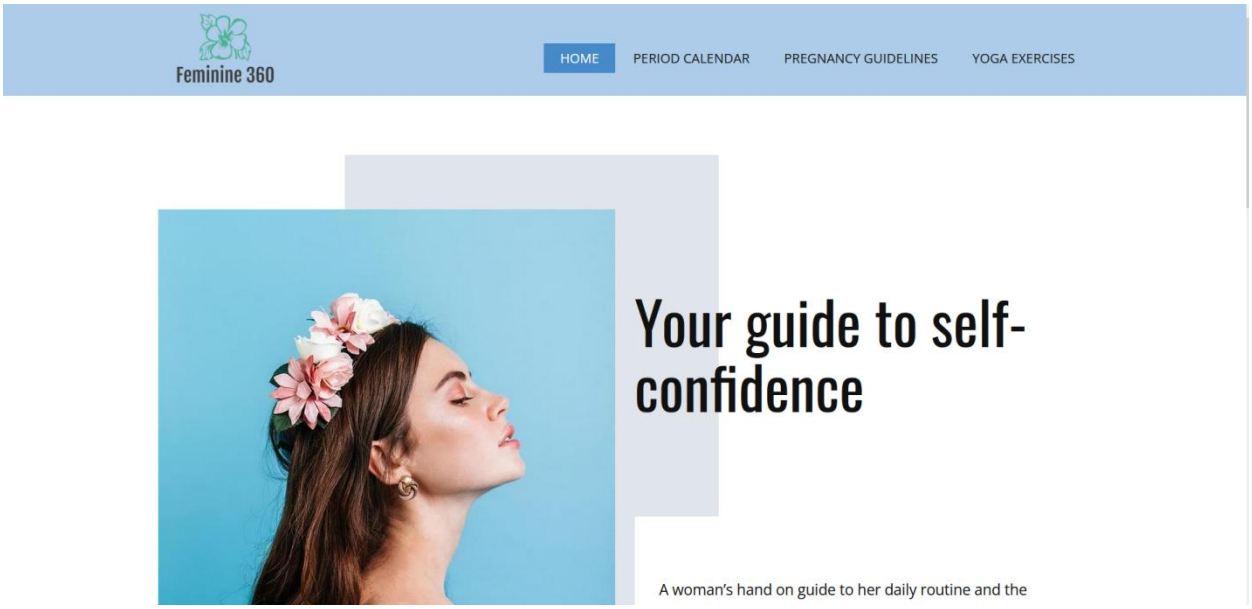
$$SE = \frac{\text{size} * \text{EAFD}}{100}$$

$$SE = \frac{3.03 * 3.08}{100} = 0.093324$$

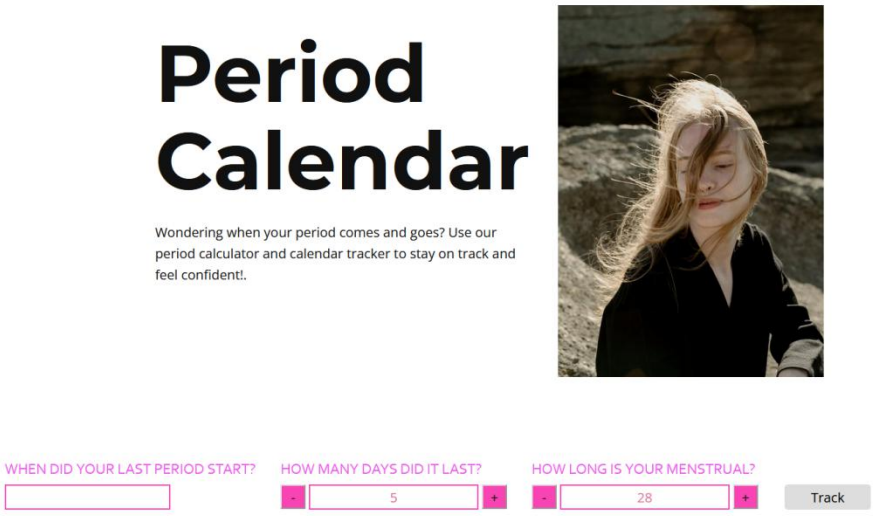
Chapter 8

8.1 SCREEN SHOTS OF PROJECT

8.1.1 HOME PAGE

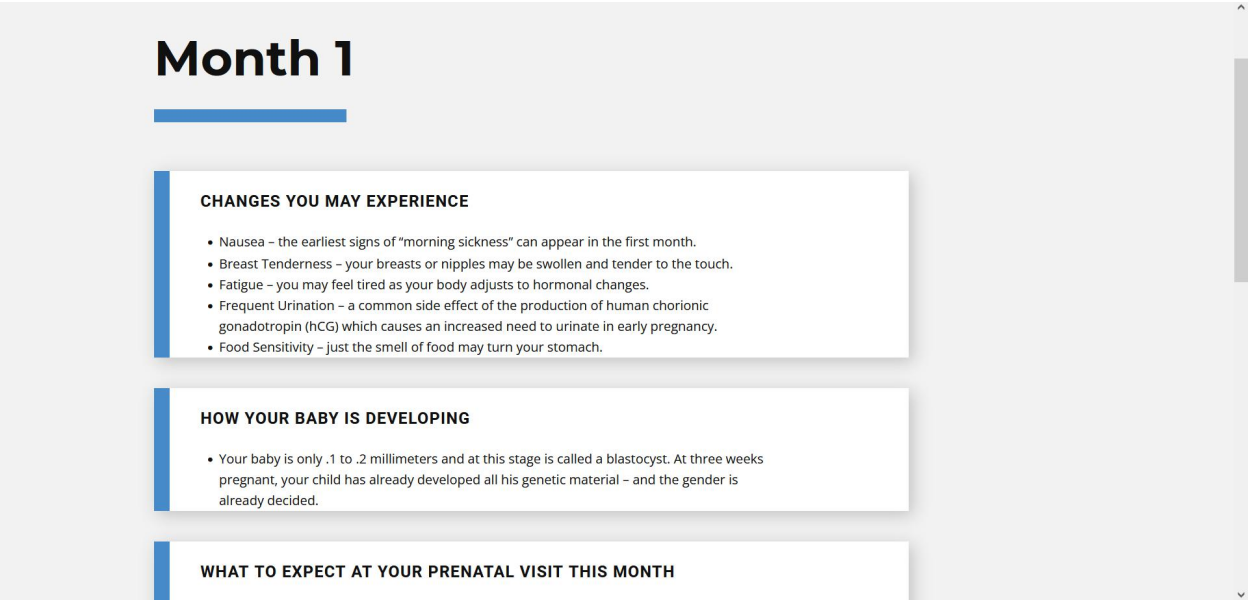


8.1.2 MENSTRUAL CALENDAR

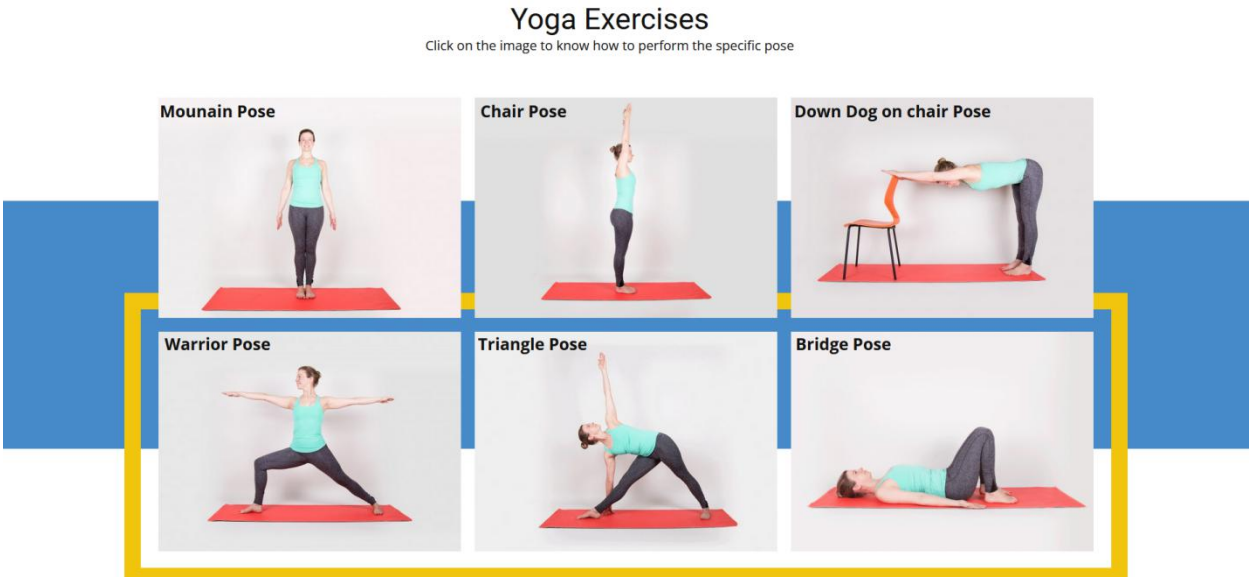


8.1.3 PREGNANCY GUIDELINE

8.1.4 PREGNANCY GUIDELINES (MONTH BY MONTH)



8.1.5 YOGA EXERCISES



8.1.6 YOGA EXERCISE