INFO-420
Software Project Management

Assignment #3
Group 6
WBS, Schedule, and Budget
For

BHYR Furniture Retail

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1. Work Breakdown Structure (WBS)

Project Life Cycle (PLC) and Systems Development Life Cycle (SDLC)

The project life cycle is focused on the phases, processes, tools, knowledge, and skills for managing a project, whereas the systems development life cycle focuses on creating and implementing the project's product - the system at hand. That being said, the SDLC on which the WBS will focus is also a subsection of the PLC.

- The PLC has the following phases:
    - Define project goal, Plan project, Execute project, Close project, Evaluate project
- The SDLC (within the Execute phase of PLC) has the following phases:
    - Planning, Analysis, Design, Implementation, Maintenance and support

Reason for selecting SDLC

The reason why we selected this SDLC is due to the fact that we want to focus on the phases and tasks that relate to the creation of the project's product. The SDLC allows us to see clearly what the problem of goal is. SDLC is also in a continuous loop between its phases until the project's product is perfected.

WBS

+0.0 BHYR Furniture Retail Mobile Platform Project

-1.0 DEVELOP CHARTER AND PLAN

-1.1 DEVELOP PROJECT CHARTER

1.1.1 Identify stakeholders

1.1.2 Project description

1.1.3 Create clear and concise project MOV

1.1.4 Identify project scope

1.1.5 Identify assumptions and risks

1.1.6 Identify resources required

-1.2 DEVELOP PROJECT PLAN

1.2.1 Organize project administration

1.2.2 Identify project organization structure

1.2.3 Project schedule

1.2.4 Project budget

1.2.5 Review and prepare project charter

1.2.6 Present project charter to BHYR

1.2.7 Milestone: BHYR signs off on project plan

1.3 Milestone: Charter and project planning phase complete

-2.0 ANALYSIS

-2.1 GATHER REQUIREMENTS

2.1.1 Review and organize goals of the project

2.1.2 Develop functional requirements

2.1.3 Develop non-functional requirements

-2.2 DEVELOP DIAGRAMS

2.2.1 Develop data diagrams

2.2.2 Develop use case diagrams

2.2.3 Develop sequence diagrams

-2.3 DETAILED ANALYSIS

2.3.1 review and prepare analysis

2.3.2 present analysis to BHYR

2.3.3 Milestone: BHYR signs off on analysis

2.4 Milestone: Analysis phase complete

-3.0 DESIGN

-3.1 USER INTERFACE DESIGN

3.1.1 Review and gather requirements

3.1.2 Organize and compile needed interfaces

3.1.3 Develop interface wireframes

3.1.4 Translate wireframes to graphical UI

3.1.5 Integrate central color theme

-3.2 DEVELOP SOFTWARE INFRASTRUCTURE

3.2.1 Identify software components

3.2.2 Identify software interfaces

3.2.3 Identify software adapters

-3.3 DEVELOP SYSTEM MODEL

3.3.1 Review software infrastructure

3.3.2 Identify connections between software and hardware

3.3.3 Organize and prepare software design document for presentation

3.3.4 Milestone: BHYR signs off on design document

3.4 Milestone: Design phase complete

-4.0 IMPLEMENTATION

-4.1 PREPARE TECHNICAL ENVIRONMENT

4.1.1 Review and prepare all necessary aspects pre-development

4.1.2 Set up technical environments and dependencies

4.1.3 Document all preparations

4.1.4 Describe development methodologies, tools, and procedures

-4.2 DEVELOPMENT OF DATABASE AND CODE

4.2.1 Create all components of the database

4.2.2 Integrate database into backend

4.2.3 Create front facing user interface

4.2.4 Connect frontend and backend

4.2.5 Review and touch up beta for presentation

4.2.6 Milestone: BHYR approves to progress to testing phase

4.3 Milestone: Construction phase complete

-5.0 TESTING

-5.1 TEST PLAN

5.1.1 UI/UX interface testing

5.1.2 Code/branch coverage

5.1.3 Smoke testing

5.1.4 Performance testing

5.1.5 Feature testing

-5.2 REPORT TEST RESULTS

5.2.1 Review test plan with BHYR

5.2.2 Carry out test plan

5.2.3 Analyze results

5.2.4 Prepare results and presentation

5.2.5 Present test results to BHYR

5.2.6 Address software issues if any

5.2.7 Milestone: BHYR signs off on test results

5.3 Milestone: Testing Phase complete

-6.0 MAINTENANCE AND SUPPORT

-6.1 EVALUATION OF PROBLEM OR ISSUE

6.1.1 Review and record relevant defect information

6.1.2 Reproduce and dissect issue

6.1.3 Prepare defect/issue report

6.1.4 Propose a defect fix

-6.2 ISSUE DEFECT PATCH

6.2.1 Review defect/issue report

6.2.2 Carry out proposed fix

6.2.3 Confirm defect fixed

6.2.4 Present patched version

6.2.5 **Milestone:** BHYR signs off on defect patch

6.3 Milestone: Implementation phase complete

2. Schedule and Budget

The assumptions we took in order to create an estimate of budget was the average base-pay of backed up software engineering companies in comparison to competitor software engineering companies. Base pay for a software engineer is about 74k annual, and at IKEA, a competitor of BHYR Furniture Retail, software engineers are paid about 92k annually. As a smaller business, BHYR estimates that their software engineers will be paid 70k annually. The type of resource in the schedule and budget consists of project team members. The method we took to calculate the labor rate for this resource is the following:

$70,000 / 2,000 work hours = $35 * 2.5
To get a labor rate of $87.5 / hour

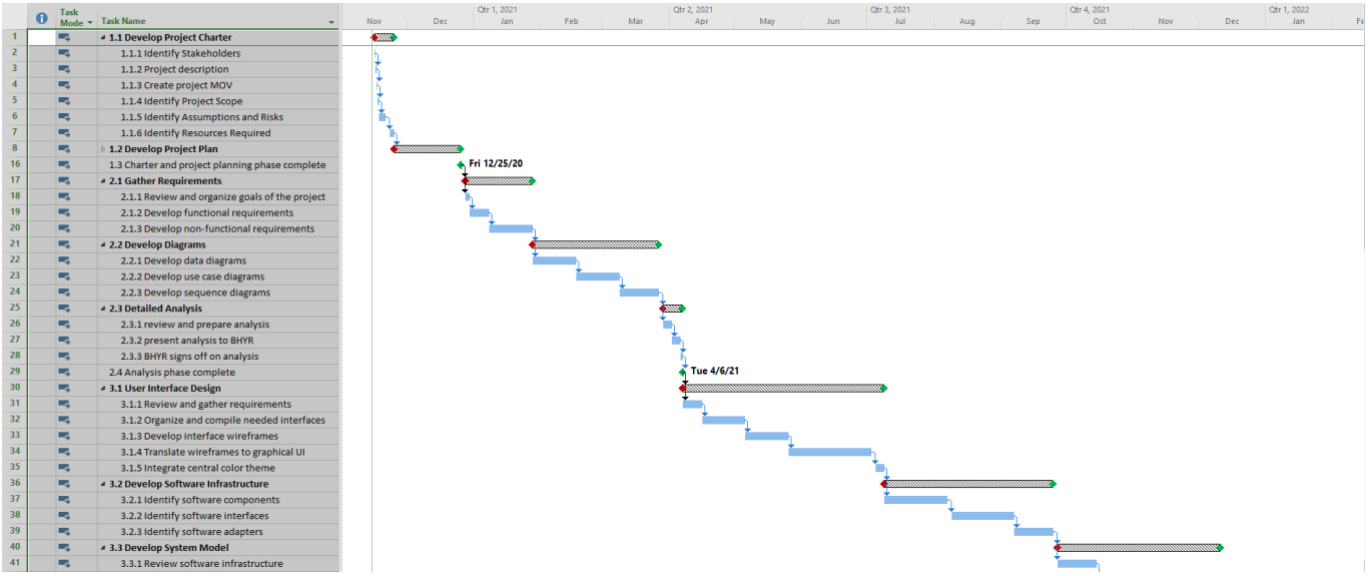
WBS no.	Duration	Resource Type	Number of resources	Total effort (Hrs)	Cost
1.1					
1.1.1	0.5 day	Project Team Member	1	4 hours	$350
1.1.2	0.5 day	Project Team Member	1	4 hours	$350
1.1.3	0.5 day	Project Team Member	1	4 hours	$350
1.1.4	0.5 day	Project Team Member	1	4 hours	$350
1.1.5	3 days	Project Team Member	3	72 hours	$6,300
1.1.6	2 days	Project Team Member	1	16 hours	$1,400
1.2					
1.2.1	1 day	Project Team Member	2	16 hours	$1,400
1.2.2	2 days	Project Team Member	2	32 hours	$2,800
1.2.3	1 week	Project Team Member	3	168 hours	$14,700
1.2.4	1 week	Project Team Member	3	168 hours	$14,700
1.2.5	4 days	Project Team Member	3	96 hours	$8,400
1.2.6	1 day	Project Team Member	2	16 hours	$1,400
1.2.7	1 day	Project Team Member	2	16 hours	$1,400
2.1					
2.1.1	2 days	Project Team Member	2	32 hours	$3,063
2.1.2	1 week	Project Team Member	4	224 hours	$19,600

2.1.3	2 week	Project Team Member	4	448 hours	$39,200
2.2					
2.2.1	1 week	Project Team Member	2	112 hours	$9,800
2.2.2	1 week	Project Team Member	2	112 hours	$9,800
2.2.3	1 week	Project Team Member	2	112 hours	$9,800
2.3					
2.3.1	4 days	Project Team Member	2	64 hours	$5,600
2.3.2	2 days	Project Team Member	2	32 hours	$2,800
2.3.3	1 day	Project Team Member	2	16 hours	$1,400
3.1					
3.1.1	1 week	Project Team Member	2	112 hours	$8,225
3.1.2	2 week	Project Team Member	3	336 hours	$29,400
3.1.3	2 week	Project Team Member	3	336 hours	$29,400
3.1.4	4 weeks	Project Team Member	5	1,120 hours	$98,000
3.1.5	4 days	Project Team Member	2	64 hours	$5,600
3.2					
3.2.1	3 weeks	Project Team Member	2	336 hours	$29,400
3.2.2	3 weeks	Project Team Member	2	336 hours	$29,400
3.2.3	2 week	Project Team Member	2	224 hours	$19,600
3.3					
3.3.1	2 week	Project Team Member	2	224 hours	$19,600
3.3.2	3 week	Project Team Member	2	336 hours	$29,400
3.3.3	2 week	Project Team Member	2	224 hours	$19,600
3.3.4	6 days	Project Team Member	2	96 hours	$8,400
4.1					
4.1.1	2 week	Project Team Member	2	224 hours	$19,600
4.1.2	2 week	Project Team Member	2	224 hours	$19,600

4.1.3	1 week	Project Team Member	1	56 hours	$4,900
4.1.4	5 days	Project Team Member	1	40 hours	$3,500
4.2					
4.2.1	7 weeks	Project Team Member	4	1568 hours	$137,200
4.2.2	6 weeks	Project Team Member	2	672 hours	$58,800
4.2.3	7 weeks	Project Team Member	4	1568 hours	$137,200
4.2.4	6 weeks	Project Team Member	4	1344 hours	$117,600
4.2.5	4 weeks	Project Team Member	2	448 hours	$39,200
4.2.6	4 weeks	Project Team Member	3	672 hours	$58,800
5.1					
5.1.1	3 weeks	Project Team Member	3	504 hours	$44,100
5.1.2	4 weeks	Project Team Member	3	672 hours	$58,800
5.1.3	3 weeks	Project Team Member	3	504 hours	$44,100
5.1.4	7 weeks	Project Team Member	4	1568 hours	$137,200
5.1.5	5 weeks	Project Team Member	4	1120 hours	$98,000
5.2					
5.2.1	2 weeks	Project Team Member	2	224 hours	$19,600
5.2.2	20 weeks	Project Team Member	5	5600 hours	$490,000
5.2.3	2 week	Project Team Member	4	448 hours	$39,200
5.2.4	1 week	Project Team Member	1	56 hours	$4,900
5.2.5	1 week	Project Team Member	3	168 hours	$14,700
5.2.6	6 weeks	Project Team Member	4	1344 hours	$117,600
5.2.7	2 weeks	Project Team Member	3	336 hours	$29,400
6.1					
6.1.1	2 weeks	Project Team Member	2	224 hours	$19,600
6.1.2	2 weeks	Project Team Member	2	224 hours	$19,600
6.1.3	1 week	Project Team Member	1	56 hours	$4,900

6.1.4	1 week	Project Team Member	2	112 hours	$9,800
6.2					
6.2.1	1 week	Project Team Member	1	56 hours	$4,900
6.2.2	4 weeks	Project Team Member	3	672 hours	$58,800
6.2.3	2 week	Project Team Member	2	224 hours	$19,600
6.2.4	1 week	Project Team Member	2	112 hours	$9,800
6.2.5	1 week	Project Team Member	2	112 hours	$9,800

Gantt Chart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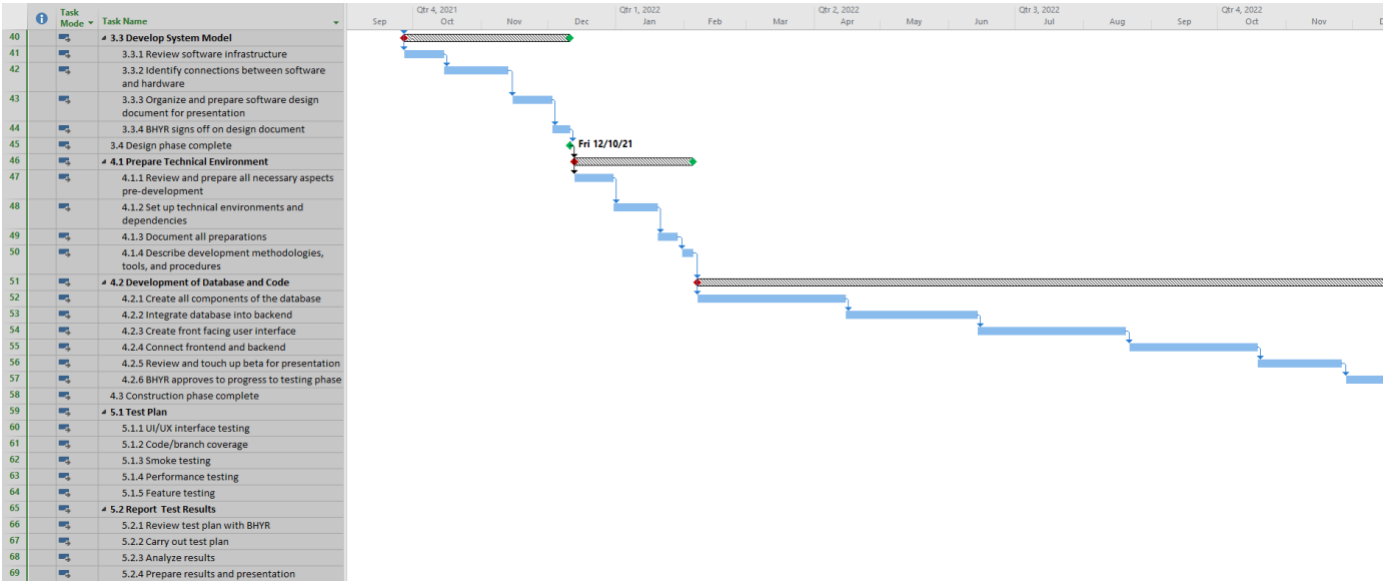
Qtr 3, 2021
Qtr 4, 2021
Qtr 1, 2022
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
1 1.1 Develop Project Charter
2 1.1.1 Identify Stakeholders
3 1.1.2 Project description
4 1.1.3 Create project MOV
5 1.1.4 Identify Project Scope
6 1.1.5 Identify Assumptions and Risks
7 1.1.6 Identify Resources Required
8 1.2 Develop Project Plan
16 1.3 Charter and project planning phase complete
17 2.1 Gather Requirements
18 2.1.1 Review and organize goals of the project
19 2.1.2 Develop functional requirements
20 2.1.3 Develop non-functional requirements
21 2.2 Develop Diagrams
22 2.2.1 Develop data diagrams
23 2.2.2 Develop use case diagrams
24 2.2.3 Develop sequence diagrams
25 2.3 Detailed Analysis
26 2.3.1 review and prepare analysis
27 2.3.2 present analysis to BHYR
28 2.3.3 BHYR signs off on analysis
29 2.4 Analysis phase complete
30 3.1 User Interface Design
31 3.1.1 Review and gather requirements
32 3.1.2 Organize and compile needed interfaces
33 3.1.3 Develop interface wireframes
34 3.1.4 Translate wireframes to graphical UI
35 3.1.5 Integrate central color theme
36 3.2 Develop Software Infrastructure
37 3.2.1 Identify software components
38 3.2.2 Identify software interfaces
39 3.2.3 Identify software adapters
40 3.3 Develop System Model
41 3.3.1 Review software infrastructure
Fri 12/25/20
Tue 4/6/21


Task Mode
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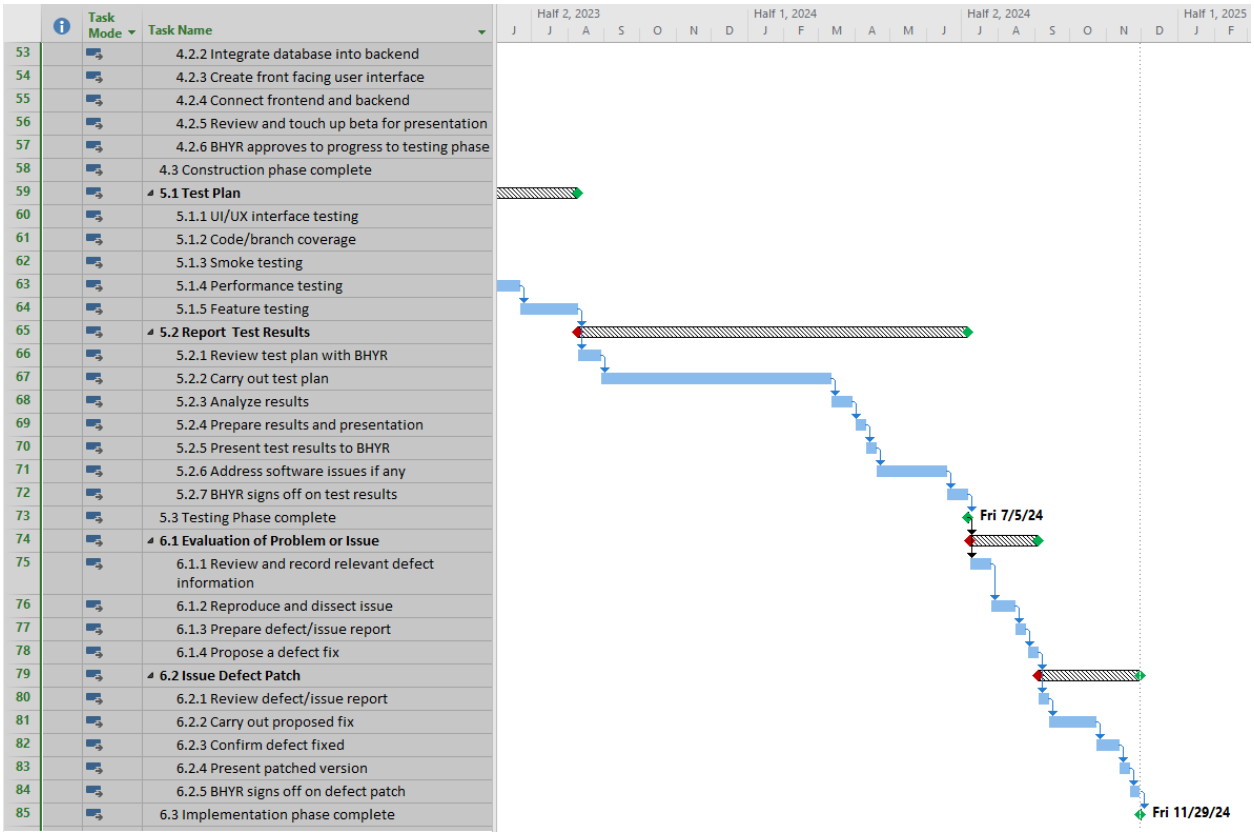
Qtr 1, 2022
Qtr 2, 2022
Qtr 3, 2022
Qtr 4, 2022
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
40 3.3 Develop System Model
41 3.3.1 Review software infrastructure
42 3.3.2 Identify connections between software and hardware
43 3.3.3 Organize and prepare software design document for presentation
44 3.3.4 BHYR signs off on design document
45 3.4 Design phase complete
46 4.1 Prepare Technical Environment
47 4.1.1 Review and prepare all necessary aspects pre-development
48 4.1.2 Set up technical environments and dependencies
49 4.1.3 Document all preparations
50 4.1.4 Describe development methodologies, tools, and procedures
51 4.2 Development of Database and Code
52 4.2.1 Create all components of the database
53 4.2.2 Integrate database into backend
54 4.2.3 Create front facing user interface
55 4.2.4 Connect frontend and backend
56 4.2.5 Review and touch up beta for presentation
57 4.2.6 BHYR approves to progress to testing phase
58 4.3 Construction phase complete
59 5.1 Test Plan
60 5.1.1 UI/UX interface testing
61 5.1.2 Code/branch coverage
62 5.1.3 Smoke testing
63 5.1.4 Performance testing
64 5.1.5 Feature testing
65 5.2 Report Test Results
66 5.2.1 Review test plan with BHYR
67 5.2.2 Carry out test plan
68 5.2.3 Analyze results
69 5.2.4 Prepare results and presentation
Fri 12/10/21



The full detailed Gantt Chart can be viewed here, and the Microsoft Project file can be downloaded here.

References

Marchewka, J. T. (2015). *Information Technology Project Management, 5th Edition*. John Wiley & Sons.

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