



JSS Company

Division of Software Sales

VERSION: 2.0.0

PROPOSAL

INTERNATIONAL RESTAURANT OF BROOKINGS
SOFTWARE PACKAGE PROJECT

(IRB PROJECT)

JSS Company CEO Sangwon Kim



2018/September/13



JSS Company

Division of Software Sales

Mr. Sung Shin CEO
International Restaurant of Brookings
111 6th st
Brookings, SD, 57006

Dear Mr Sung Shin

The owner of International Restaurant of Brookings

Thank you for considering the choice of choosing our company JSS for your business partner. With 15 years of high experience we provide you the best skilled teams to get your dreamed technologies to come true. Our company is formed with 30 people of professional only to support you and your business. We will provide you the services that you will never find from any other company like us.

The following projected web page of your company plan to have following features: Sales Management with simple register system, Account Payable/Receivable, Smart advertisement, Smart Inventory Control, Smart Reservation which have explained detailly in following documents.

Our cost estimator have estimated overall project, estimate as \$100,000.00 with delivery date of November 26, 2018

Now hope you have understand our project briefly and our goal is to make your dreams come true on the digital world, if happen to have any question regarding the following project we will do our best to clear the question you have regarding our business.

Sincerely,

Sangwon Shin

CEO of JSS Company

800 Park Ave

Brookings, SD, 57006

TEL: 605-592-6275

E-mail: sakuranohayu@gmail.com

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1. SCOPE

I.I.I JSS COMPANY INTRODUCTION

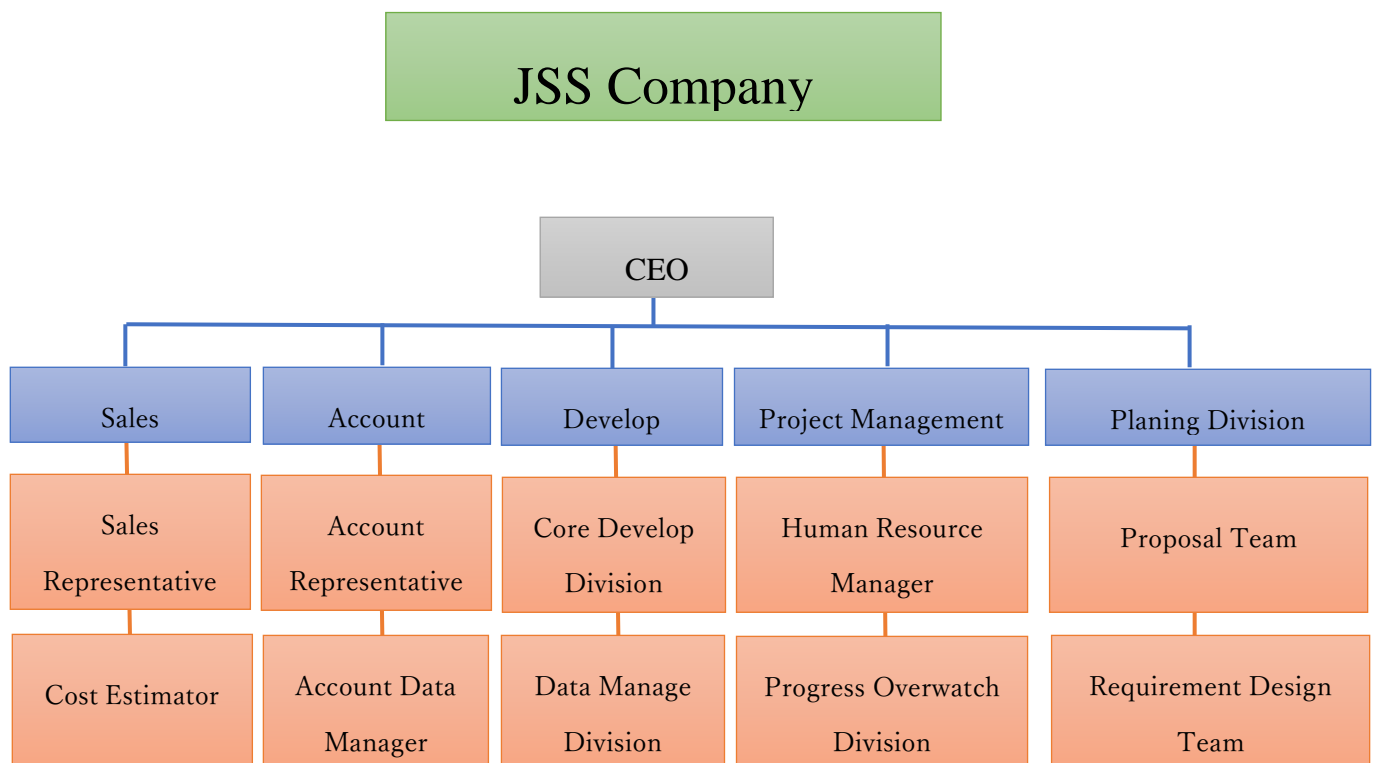
Our company JSS is software creating company established in 2010 at Brookings, started with small company of 3 people of Sangwon Shin, Junmo Kim, Sanil Khamkar

Our company had been partners of making many companies dream of creating their smarter business with evolving IT technologies. Our company is experienced with management program of many small to middle size business works on environment like inter network system or even online system by needs of our customers.

JSS company will provide you the experience of the comfortable and profitable software with great customer cares.

Our job is to satisfy your IT dreams of business together.

I.I.II ORGANIZATION CHART



I.I.III COMPANY CONTACT

COMPANY CONTACT INFORMATION

Company Name	JSS Company
Address	800 Park Ave, Brookings, SD
Representative	Sangwon Shin
TEL	605-592-1111
EMAIL	CustomerService@JSS.com

I.II.I ON THE SHELF PROGRAM

SOFTWARE FOR CREATING WEBSITES OR WEBPAGES

(FREE USERS WITH PAID FEATURES)

FREE WEBSITE BUILDER (ONLINE PAGE BUILDER)

- ✧ Mostly provides construction tools without any requirement for code editing.
- ✧ Helps the user to create a fully functional Website without the knowledge of coding.

1. BENEFITS:

- Easy to use.
- Ready-made templates available for design.
- 24/7 support teams.
- Affordable pricing.

2. SOFTWARE TOOLS:

- No need for writing the code.

- Time – Saving.
- All tools provided for editing and building the Website.

3. PUBLISHING:

- Publishing is made easy by just building and publishing the Website without any necessary tools or commands. One – click done.
- No need to deal with servers, the technical team sets everything up before hand.

4. TECHNICAL SUPPORT:

- Most of the Software Websites provide 24/7 support.
- The support team can be contacted via:
 1. Email.
 2. Phone.
 3. Live Chat.

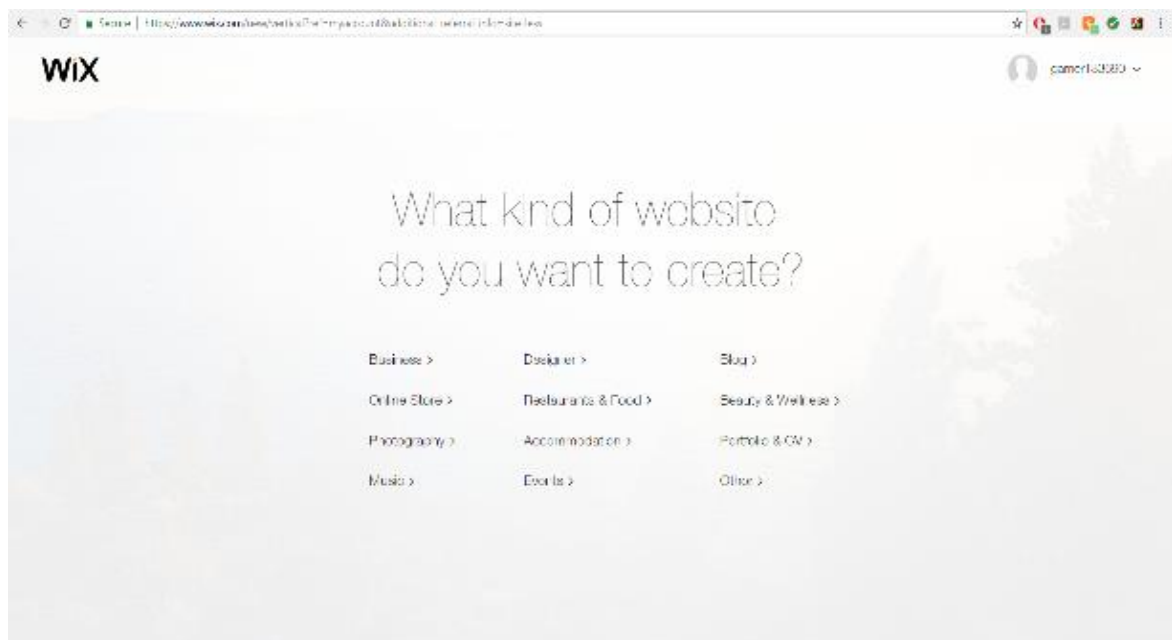
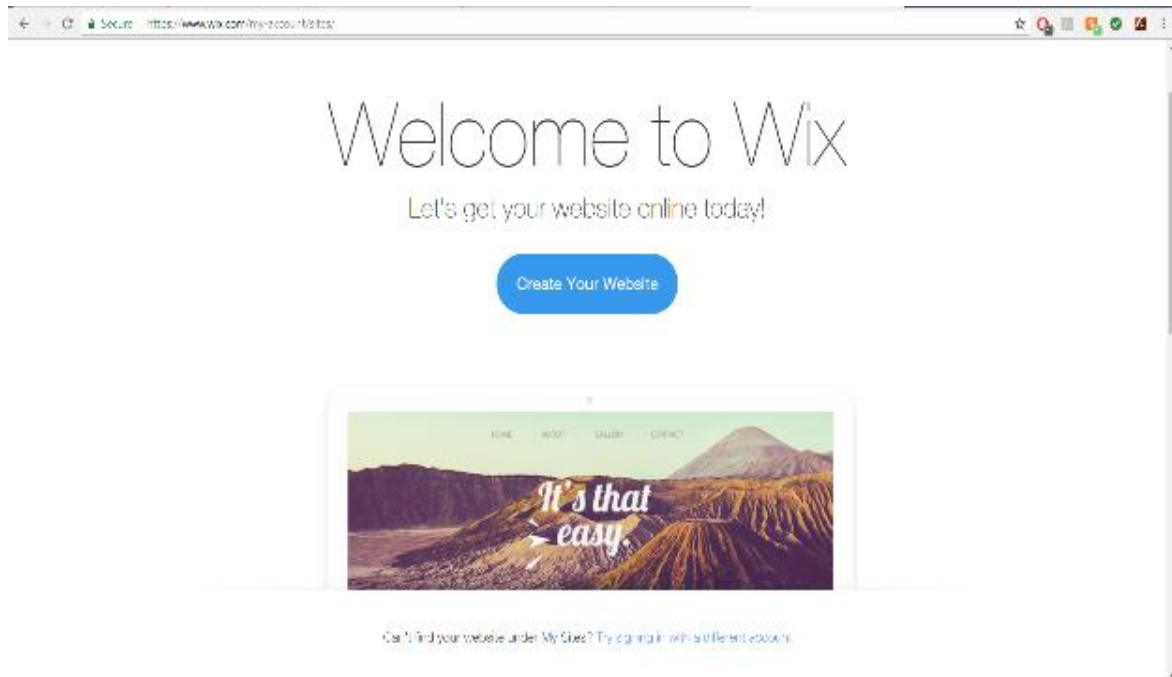
5. PRICING:

- Affordable as the user thinks as it is just a one – time investment.
- Monthly plans start from \$5 to between \$(20-30) depending on the website and user requirements per month.

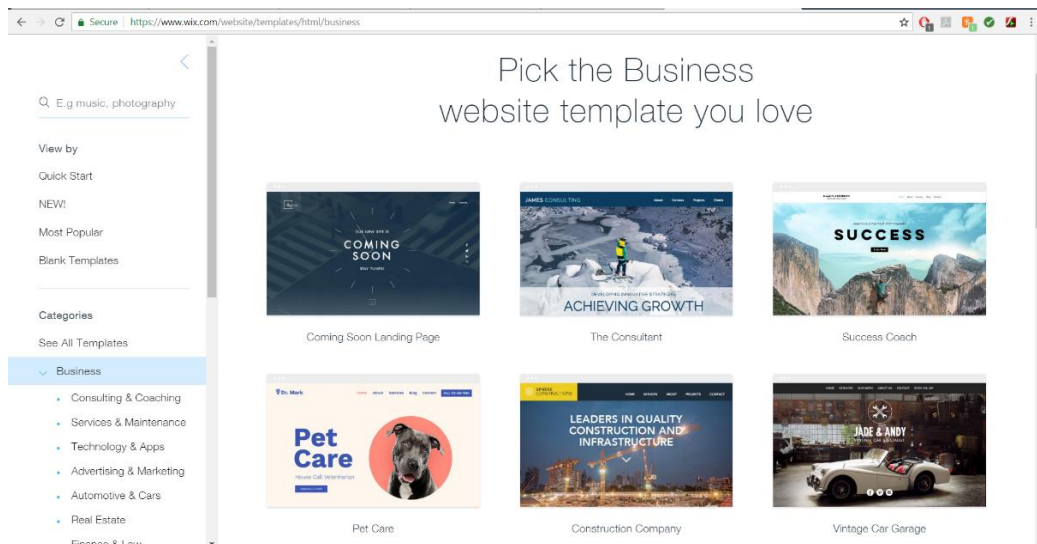
Popular example of Web Design Software is Wix.com including many more.

WIX.COM [1]

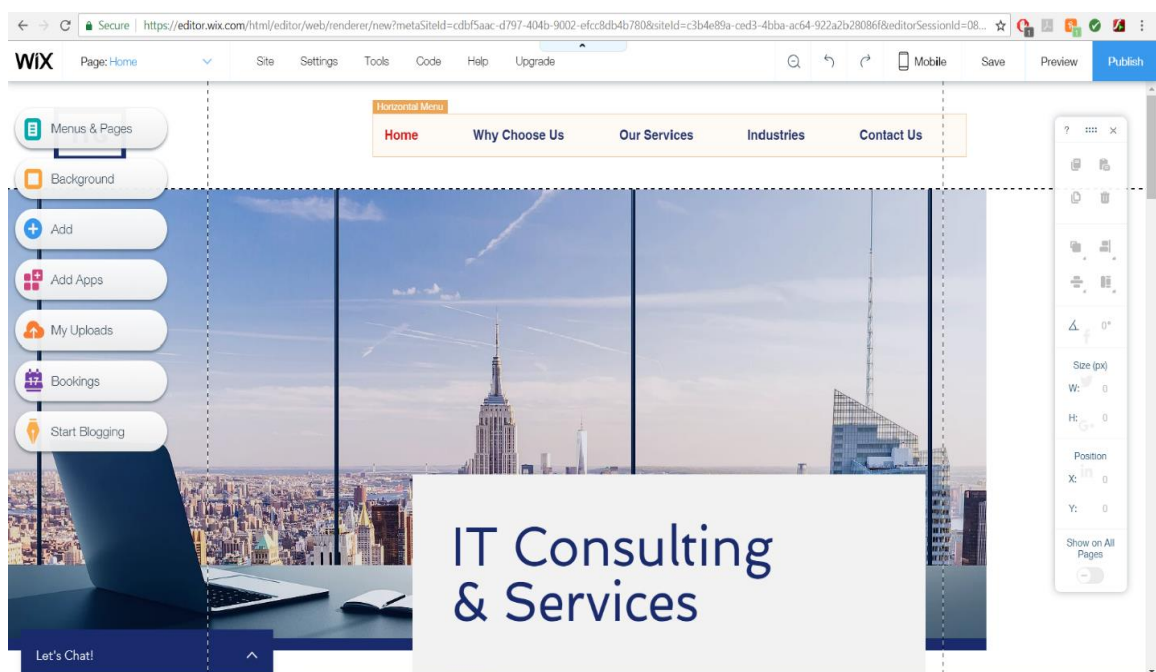
- ✧ The start page, and after clicking on the create your website button the user will have to answer a few questions in response to the user needs.



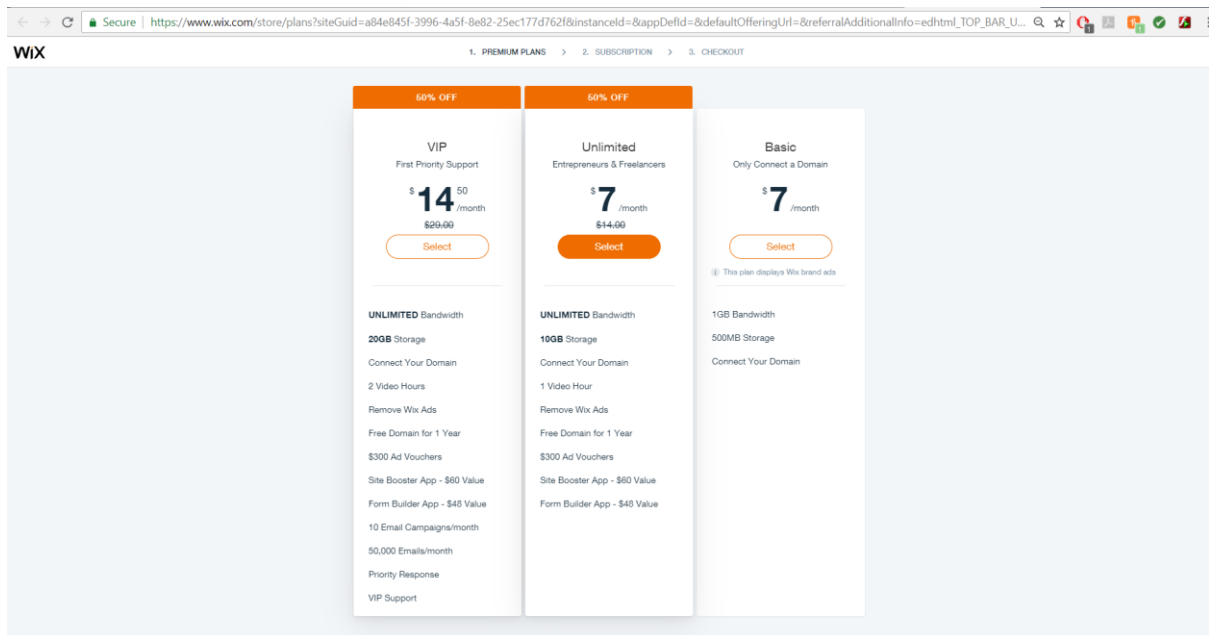
- ✧ The next step requires selecting from a variety of templates that suites the user the best.



- ✧ After selecting a template, the Website provides an editor to edit specific areas of the webpage like background, menu items, adding pages, uploading images etc.



✧ Premium items usually add additional features and require to be paid.



✧ Programmer's opinion: The website design program by other company requires additional design time by customers. Therefore, to satisfy the customer's request we will concentrate on simple and conceptual design that any user can learn quick and easy.

I.II.II BUILDING PROGRAM FROM ANOTHER COMPANY

SOFTWARE FOR CREATING WEBSITES OR WEBPAGES
(HIRING A COMPANY FOR DESIGNING THE WEBSITE)

COST FOR DEVELOPING A WEBSITE [2]

1. Drag and Drop Builder - \$100 to \$400.
2. WordPress - \$140 to \$500.
3. Custom - \$2000 to \$10000+

Cost for WordPress (blog) or any other high functional website.

WHY IS THE COST SO HIGH?

1. Requires technical skills for designing the site.
2. External hiring cost which range from \$30 to \$150 per hour.

PHASES FOR DESIGNING THE WEBSITE AND ITS COST REQUIREMENTS:[3]

1. DOCUMENTATION:

- The Layout structure:
 1. Online brand.
 2. Website structure.
 3. Website functionality.
- Complex websites require detailed documents to fully define the project.
- Cost can be anywhere from \$500 to \$1500.

2. INTERFACE DESIGN:

- Resembles the 'look-and-feel' of the website.
- The designer and the user approve on a specific design.
- Cost can range from \$1500 to \$4500.

3. IMAGES AND GRAPHICS:

- Adding graphics or image increases the overall effectiveness of the website.
- Adding graphics or images can range from \$10 each to \$100 for stock images.

4. CONTENT CREATION AND INSERTION:

- Adding more content can be done by Content Management Systems (CMS).
- It can range from \$100 to \$150 per page.

5. SPECIAL FEATURES:

- User may request for adding a blog upon the user needs which may range from \$1000 to \$2500.
- E-commerce shopping carts, catalog, payment processing system add from \$1500 to \$5000.
- Adding a News Feed bulletin can cost around \$450 and Newsletter from \$400 to \$900.
- Creating and Managing Social Media Network profile (Twitter, Facebook, LinkedIn, YouTube etc.) \$5000 to \$12000.

Rough Estimate for building a Website:

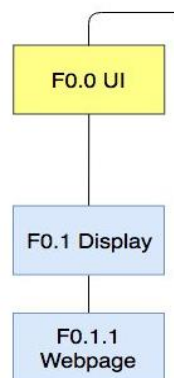
Domain	\$10 to \$20 per year.
Hosting	\$10 to \$30 per month.
Custom Design	\$2500 to \$10000+.
Additional Theme	\$50 to \$200.
External Functionality	\$15 to 200 each.
Marketing	\$500+ per month.
Web Maintenance	\$500 per year.
Web Services	\$75 to \$150.
Total	\$200 to \$10000+

2. PLAN

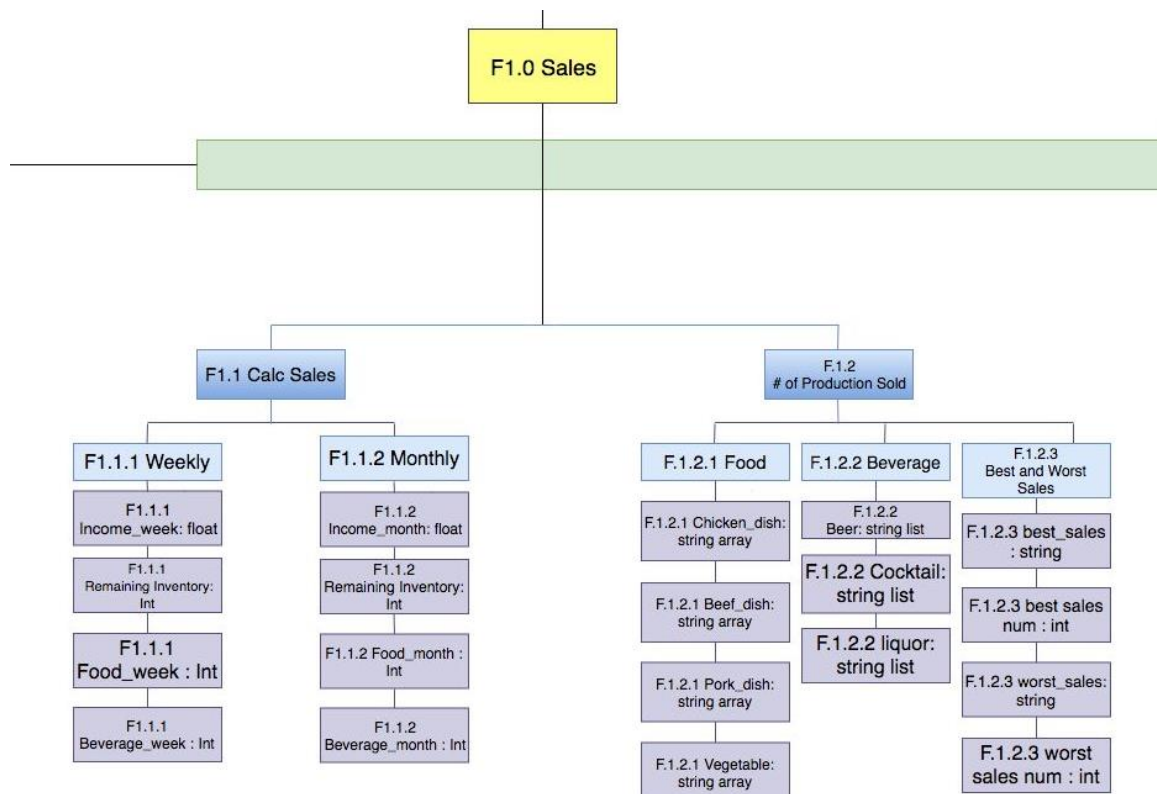
II.I.I FUNCTIONAL WORK BREAKDOWN STRUCTURE (FWBS)

FWBS have to be broken down into pieces to put on to pages

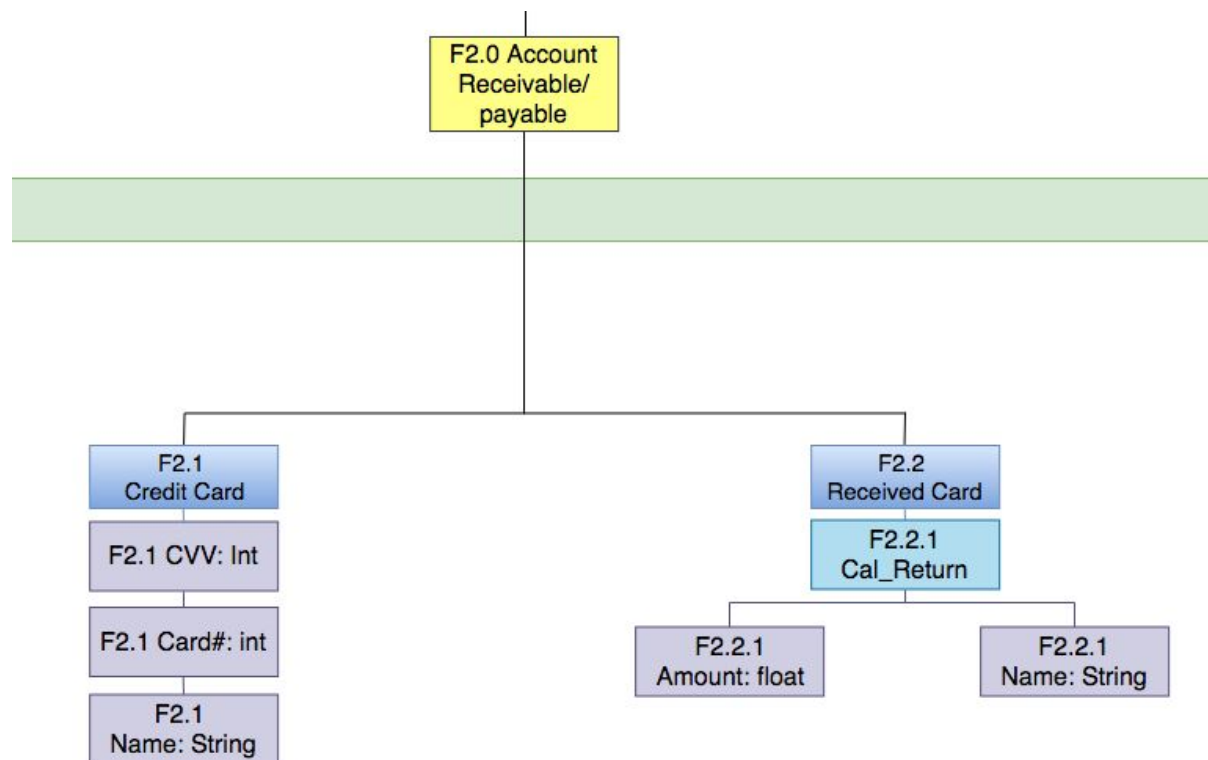
UI



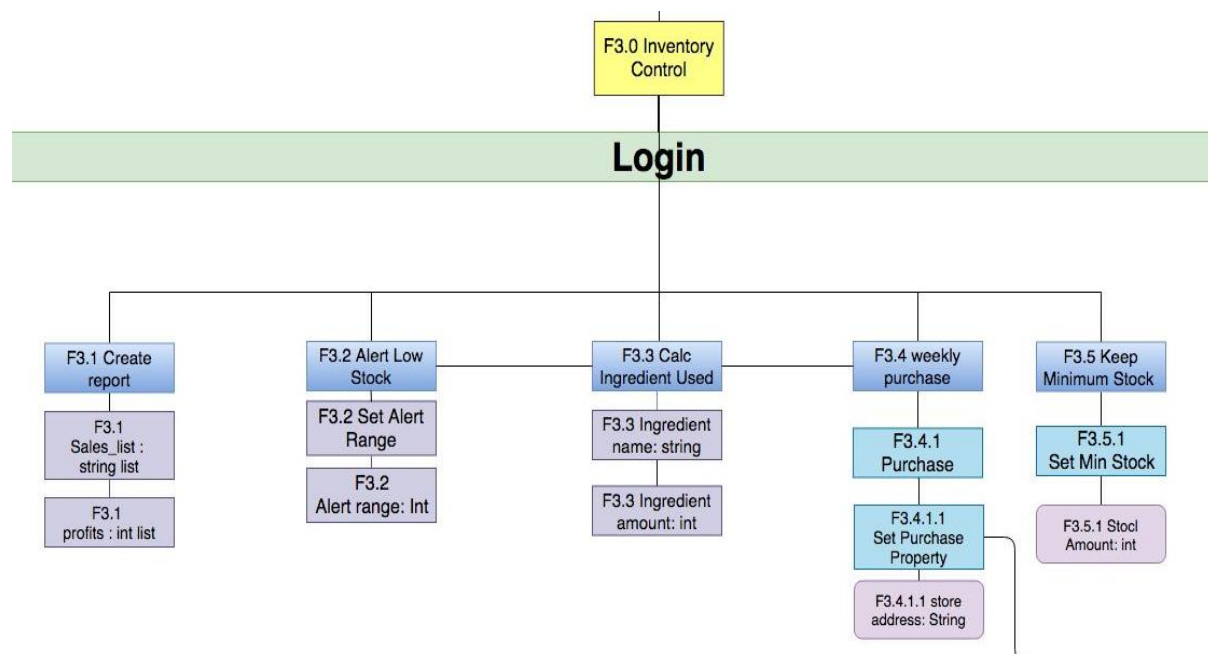
SALES



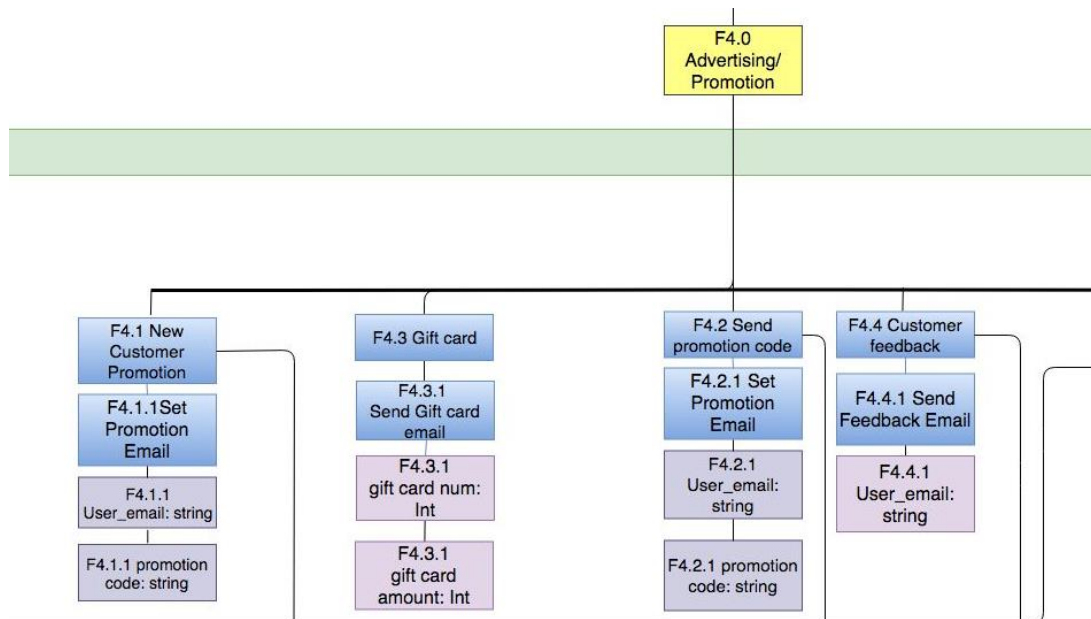
ACCOUNT RECEIVABLE/PAYABLE



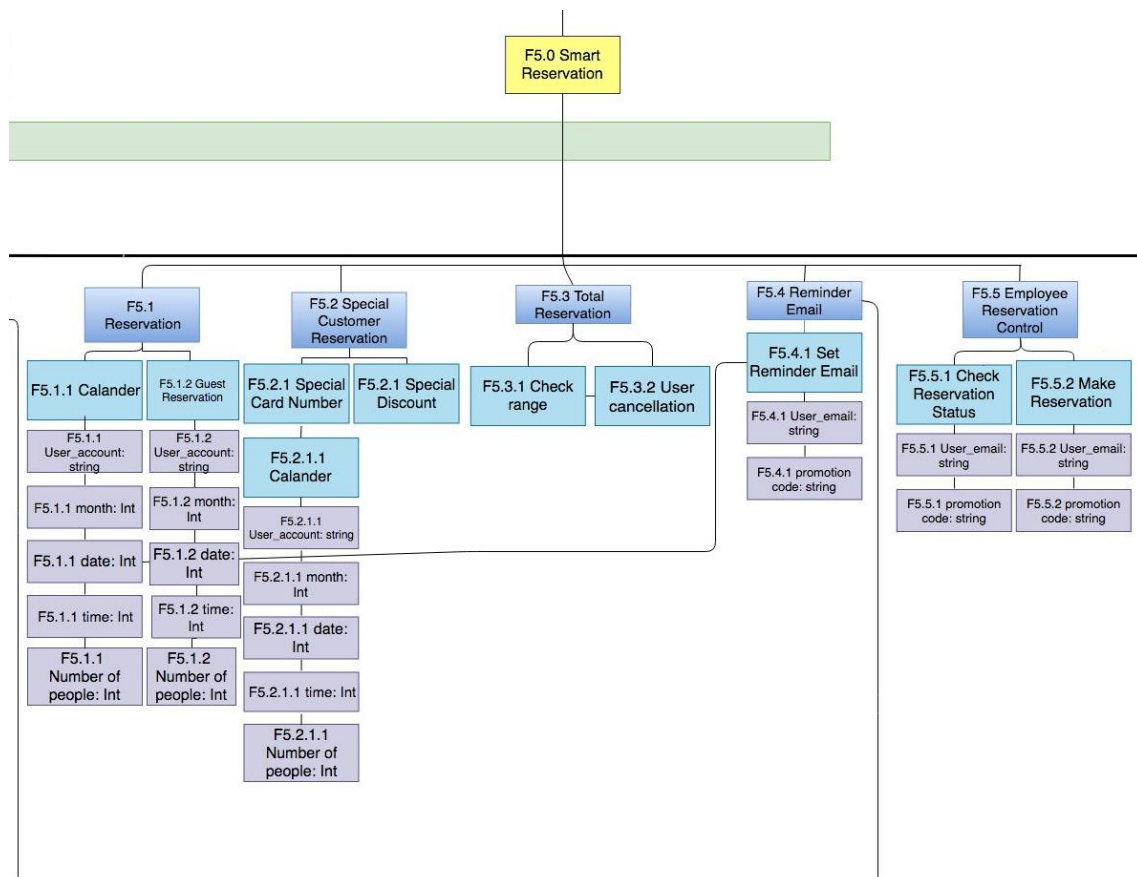
INVENTORY CONTROL



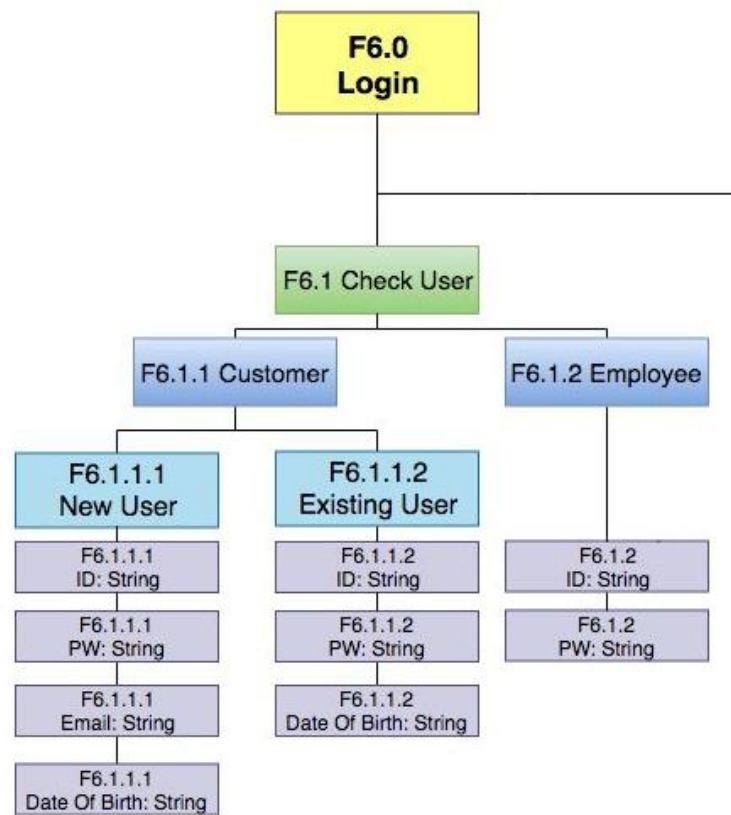
ADVERTISING/PROMOTION



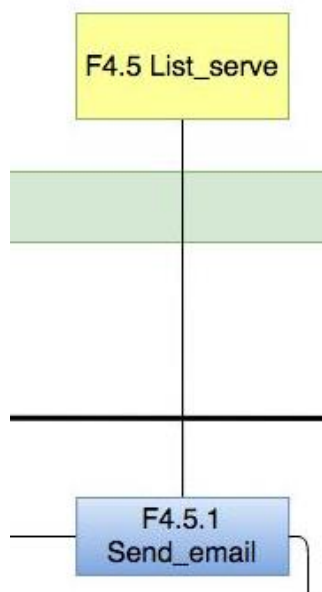
SMART RESERVATION



LOGIN



LIST SERVE



II.II.I ACTIVITY GRAPH

Early Start	Duration	Early Finish
M.S #	Task	FWBS #
Late Start	Slack	Late Finish

0	1	1
1.1	Create question	
0	0	1

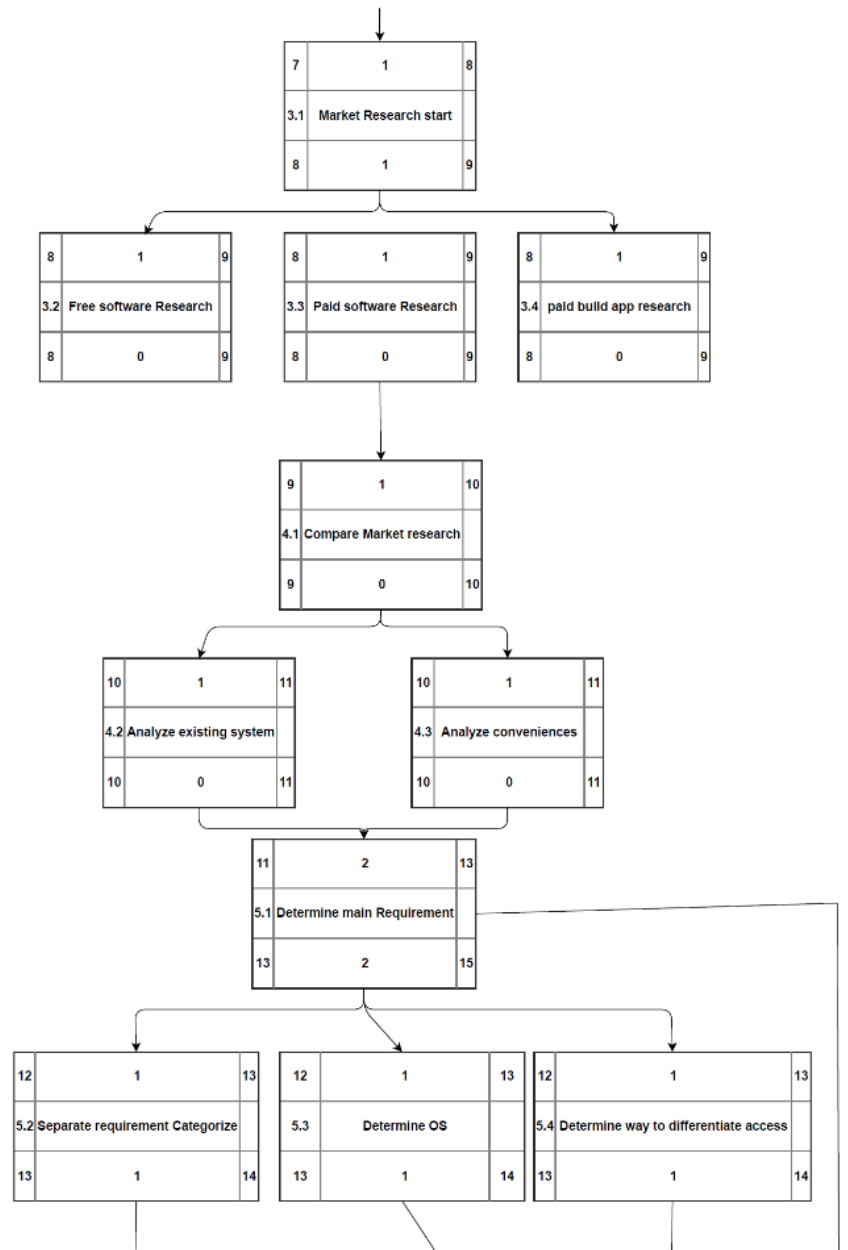
1	2	3
1.2	Arrange Interview	
1	0	3

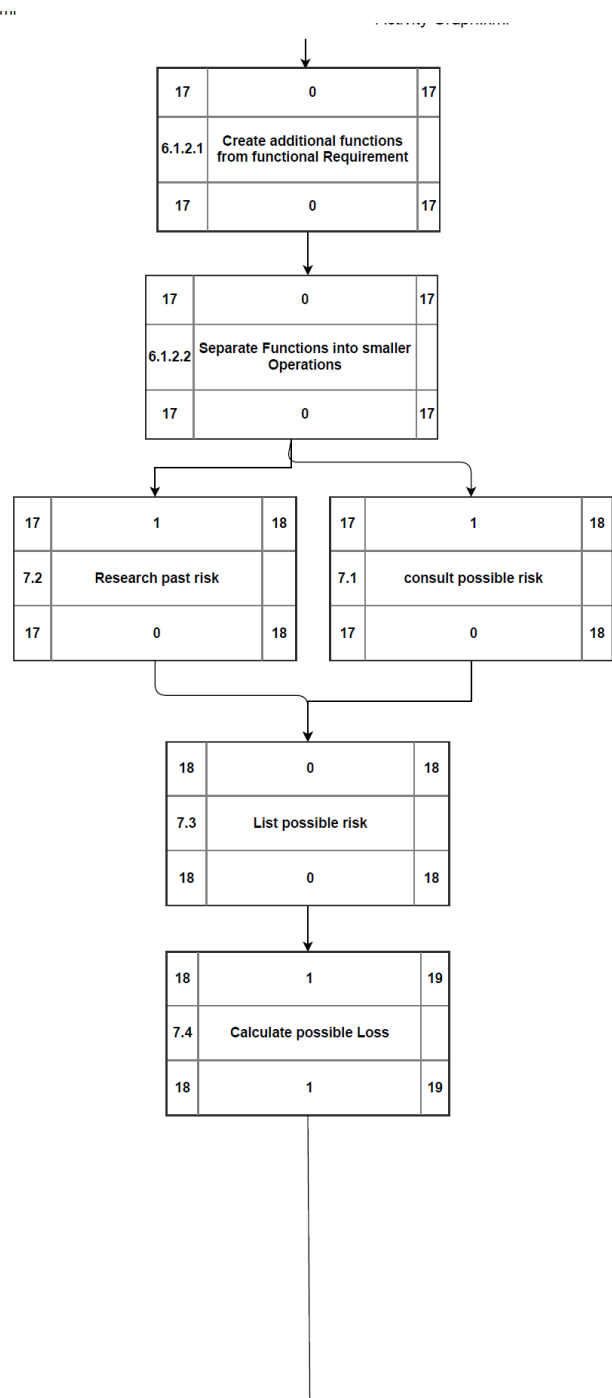
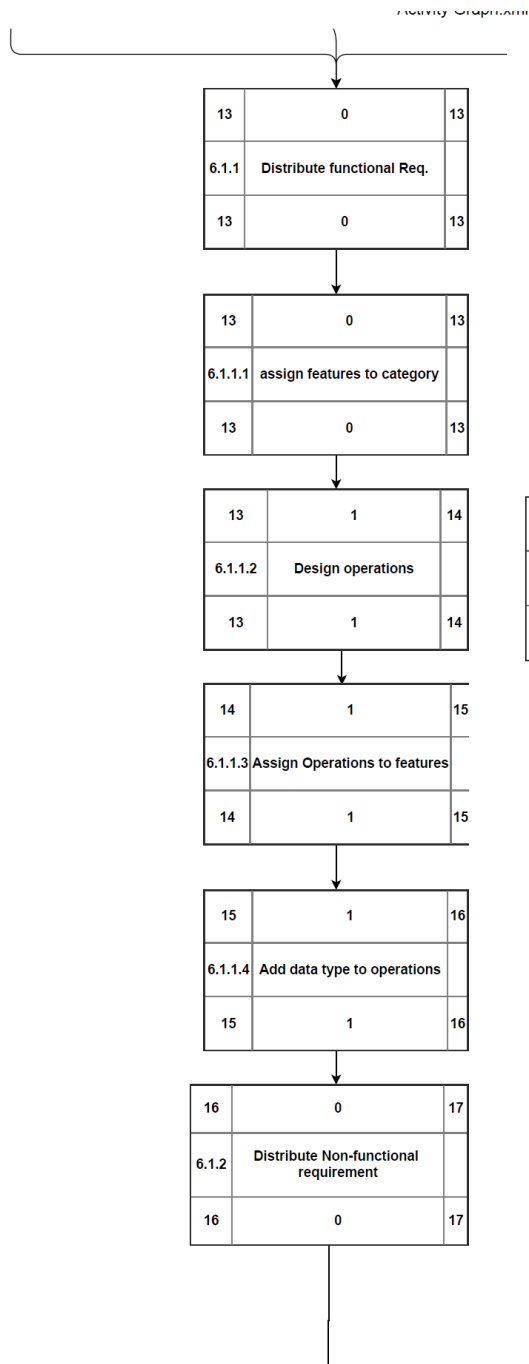
3	1	4
1.3	Perform Interview	
5	3	6

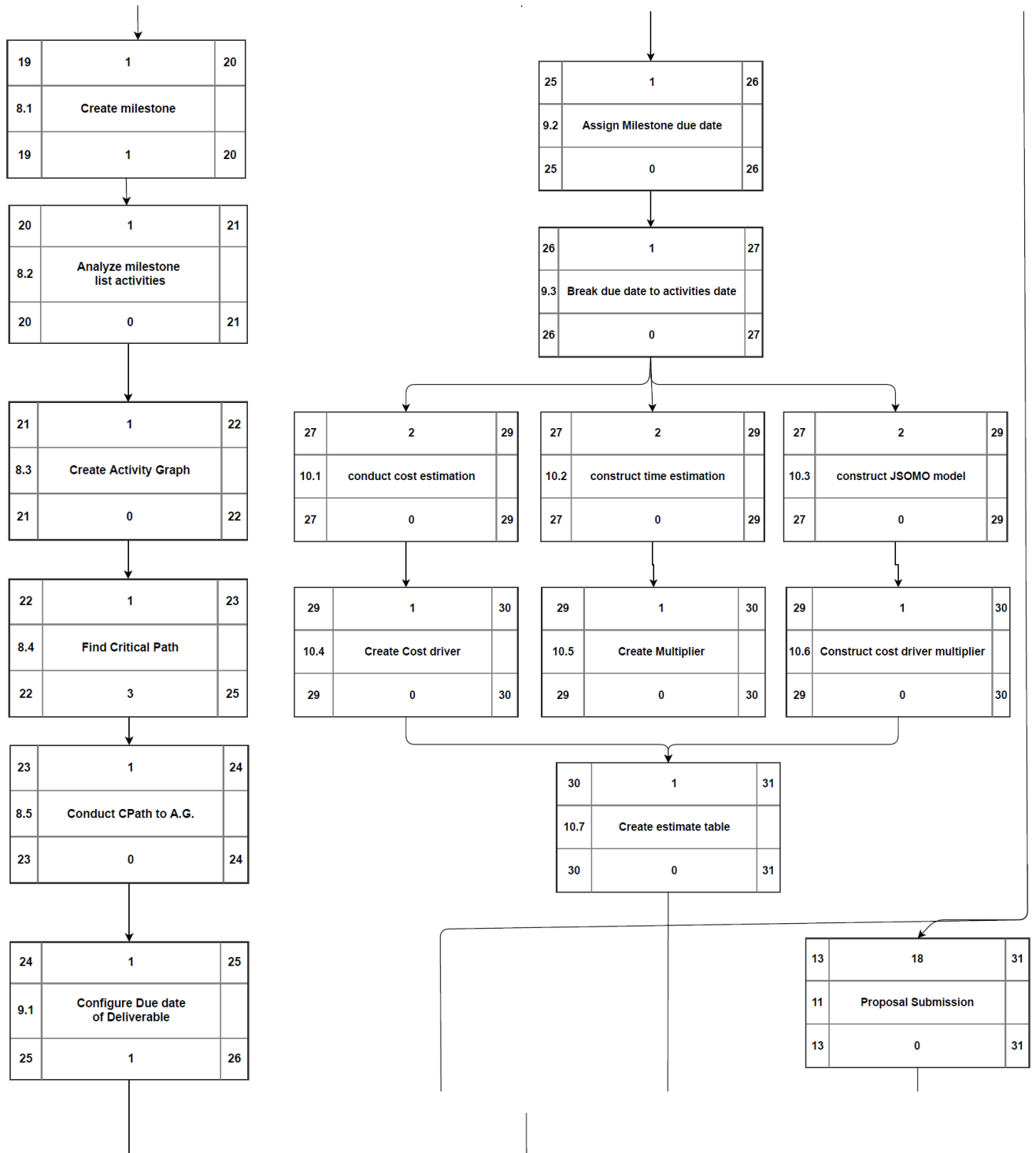
4	1	5
2.1	seek main desire	
4	0	5

5	1	6
2.2	Desire to category	
5	0	6

6	1	7
2.3	Category to function	
6	0	7







1	2	3
12.1	Create big frame from FWBS	
1	0	3

3	2	5
12.2	Setup Class from Big frame	
3	0	5

5	3	8
12.3	Create functionality with-in Classes	
5	0	8

31	10	41
13	Requirement Documentation Submit	
31	0	41

41	1	42
14	Modify Design And Adjust	F0.0
41	0	42

42	1	43
15	Customer Interview	
42	0	43

56	0	56
17.1	Construct Local Database	F0.0 F1.0 F2.0 F3.0 F4.0 F5.0 F6.0
56	0	56

56	0	56
17.2	Connect Local Database	F0.0 F1.0 F2.0 F3.0 F4.0 F5.0 F6.0
56	0	56

56	1	57
17.3	Connect distributed Sheet	
56	0	57

57	2	59
18	Login Implementation	F6.0
57	0	59

59	1	60
19	Progress presentation to Customer	
59	0	60

43	13	56
16	Customer Interview	
43	0	56

60	0	60
20.1	Receive feed back from customer	
60	0	60

60	0	60
20.2	List what to adjust	
60	0	60

60	0	60
20.1	Adjust Design	F0.0 F1.0 F2.0 F3.0 F5.0
41	0	42

61	2	63
21.1	Number the order of category to implement	
61	0	63

63	1	64
21.2	Assign jobs to team	
63	0	64

64	1	65
21.3	Implement code	F1.0 F2.0 F3.0 F4.0 F5.0
64	0	65

65	1	66
21.4	Merge code	F1.0 F2.0 F3.0 F4.0 F5.0
65	0	66

66	1	67
22.1	Consult Special Customer Logic	F5.0 F5.1 F5.2
66	0	67

67	1	68
22.2	Create math formula for Special Customer Logic	F5.1 F5.2
67	0	68

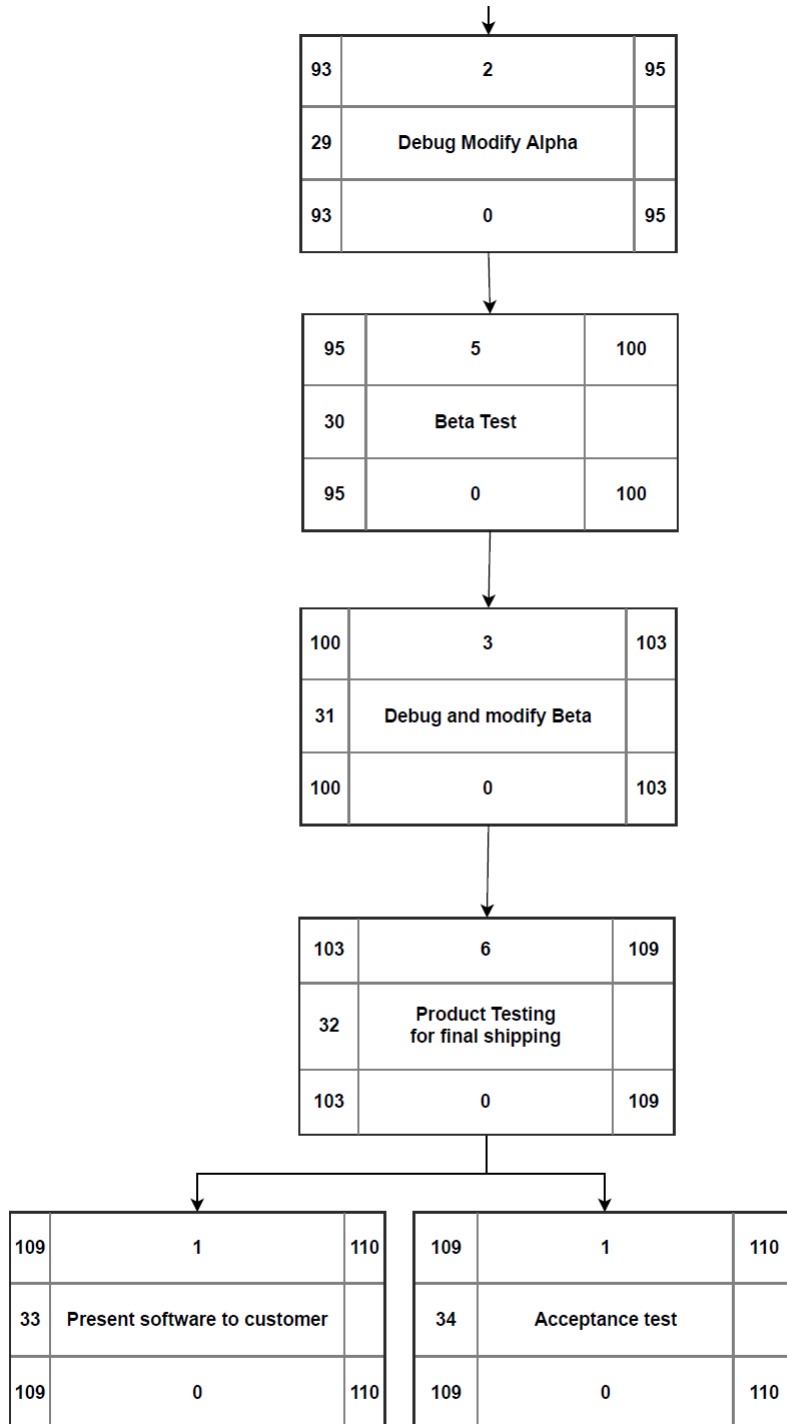
67	1	68
22.2	Design Special Customer Functionality	F5.1 F5.2
67	0	68

68	1	69
22.4	Divide jobs into smaller job	
68	0	69

69	1	70
22.5	Implement Special Customer System	F5.0
69	0	70

70	1	71
22.6	Merge Special Customer System	F5.0
70	0	71





II.III.I ACTIVITY ON ACTIVITY GRAPH

Activity

- 1 Consult with customer for Software
 - 1.1 Create list of question to ask to Customer
 - 1.2 Contact customer for arrange interview
 - 1.3 Perform Interview with customer, receives desirement of customer
- 2 Analyze the customers desire of software
 - 2.1 Based on collected question seek the main desire of customer for software
 - 2.2 Separate main desire into possible feature category
 - 2.3 Separate possible feature category into functionality
- 3 Market Research
 - 3.1 Based on customers desire, start research from free software
 - 3.2 Research free softwares benefit and disadvantage
 - 3.3 Research paid softwares benefit, disadvantage and cost
 - 3.4 Research paid to build similar page and cost
- 4 Analyze Market Research
 - 4.1 With founded list, compare the benefit and disadvantage
 - 4.2 Analyze requirements about existing restaurant management system
 - 4.3 Analyze conveniences in restaurant management system based on accessibility of user, server requirement, and system requirements
- 5 Analyze requirements
 - 5.1 Determine main requirement of the project
 - 5.2 Separate the requirement and categorize it
 - 5.3 Determine which OS to be used like windows – 10 or mac OS X
 - 5.4 Determine way to differentiate Web access and mobile access by user.
- 6 Distribute functional and non-functional
 - 6.1 Based on analyzation of requirements
 - 6.1.1 Distribute Functional requirement
 - 6.1.1.1 From big category and analyzed customer desire, assign features to big category
 - 6.1.1.2 Design the possible operations of features and list
 - 6.1.1.3 Assign the operations to features
 - 6.1.1.4 Add possible use of data type to operations
 - 6.1.2 Distribute Non-functional requirement
 - 6.1.2.1 From functional requirement analyzed, conduct additional

functions

6.1.2.2 Separate functions into more smaller operations

- 7 Discover Risk of project
 - 7.1 Consult with team to figure out what possible risk can happen
 - 7.2 Research past disaster happened that could be risk of project
 - 7.3 List the possible searched risk
 - 7.4 Calculate the possible loss by the risk happens
- 8 Critical Path analysis
 - 8.1 Create the milestone to follow in project
 - 8.2 Analyze milestone more detailed list activities
 - 8.3 Create activity graph
 - 8.4 Based on activity graph find critical path
 - 8.5 Construct critical path on activity graph
- 9 Schedule project
 - 9.1 Configure customers desired due date of deliverable
 - 9.2 Based on due date and milestone break down big chunk of due date
 - 9.3 Based on activities under milestone break down into each activities date
- 10 Estimate Cost Calculation
 - 10.1 Based on Companies previous experience construct cost estimation
 - 10.2 Based on Companies previous experience construct time estimation
 - 10.3 Based on COCOMO formula and estimation construct JSOMO model
 - 10.4 Consult with team and create cost drivers
 - 10.5 Create multiplier for reliability categories
 - 10.6 With JSOMO models construct Cost driver multiplier values
 - 10.7 Based on cost driver multiplier values create estimate table
- 11 Propose to Customer and submit Proposal documentation
 - 11.1 Give general description about program
 - 11.2 Show benefits about programs
 - 11.3 Comparison between existing programs and ours
- 12 Design program frame
 - 12.1 With created FWBS create the big frame of program
 - 12.2 From big frame setup classes
 - 12.3 Create functionality with-in class
- 13 Requirement Documentation Submit
 - 13.1 Create big picture image of project
 - 13.2 Create mockup UI based on FWBS

- 13.3 Construct into one report and submit
- 14 Modify Design and adjust
 - 14.1 With customers feed back of documentations consult with team
 - 14.2 Create list of modification and adjustment
- 15 Customer Interview
 - 15.1 Arrange middle progress interview with customer
 - 15.1.1 Create the list of questions and modifications done for client
 - 15.1.2 Contact customer for interview arrangement
 - 15.1.3 Perform interview with customer
 - 15.1.4 List customers Opinion for future modification
- 16 Design Documentation Submit
- 17 Database Linkage
 - 17.1 Construct the database with in local machine for development
 - 17.2 Connect database created to project
 - 17.3 Connect distributed sheet of database matches to the needs
- 18 Login method implement
 - 18.1 Consider what will be needed for login information
 - 18.2 Create the login backend control
 - 18.3 Create front end control and link
- 19 Progress Presentation to Customer
 - 19.1 Create list of functionality that will be demoed to customer
 - 19.2 Contact customer to setup date for progress presentation
 - 19.3 Perform the progress presentation to customer
- 20 Adjust Design by customers request
 - 20.1 Receive feed back from customer from progress presentation
 - 20.2 Consult with team and list what to adjust and suit request
 - 20.3 Adjust the design to suit customers request
- 21 Implement Core part
 - 21.1 From created frame and FWBS above, number the order of which category will be implemented first
 - 21.2 Based on order of implementation assign team with each jobs
 - 21.3 Implement the assigned part of the code
 - 21.4 Merge the completed code into project
- 22 Smart System (VIP system) Implement
 - 22.1 With team consult VIP system logic
 - 22.2 Create the mathematic formula for VIP system logic

- 22.3 Design the VIP system functionality
- 22.4 Divide jobs into smaller job assign to team
- 22.5 Implement VIP system with team
- 22.6 Merge the code
- 23 Basic test with simple data sets for functional test
 - 23.1 Create 100 dummy user list with their monthly purchase history and visit history
 - 23.2 Implement the simple test cases with list of user above
 - 23.3 Run the simple test with dummy data
 - 23.4 Collect the output of test
- 24 Acceptance Test Plan
 - 24.1 Create list of functionality to check
 - 24.2 Create dummy data list would be used for checking
 - 24.3 Determine the order of running program
 - 24.4 Determine the priority of showing the functions
 - 24.5 List the Data above and create template
 - 24.6 run the demo for acceptance test
- 25 Database seed with random data
 - 25.1 conduct the database input to seed the data
 - 25.2 seed the database with SQL manager tool
 - 25.3 check seeded data is detected on software
 - 25.4 Using add method in software to seed database
 - 25.5 check if database hold correct seeded information
- 26 System Test plan designed
 - 26.1 research suited test methodology of test to be taken
 - 26.2 choose test methodology
 - 26.3 setup testing environment
 - 26.4 conduct input and output test cases to test functions
- 27 System Test Performed
 - 27.1 with conducted input and output create unit testing
 - 27.2 Perform system test
 - 27.3 collect output of system test
 - 27.4 analyze the test result
- 28 Alpha test with in Company
 - 28.1 Compile the software package to release mode
 - 28.2 Create test answer form for tester

- 28.3 pick random personal with in company and request for alpha test
- 28.4 Send release mode compiled software and test form to alpha test users
- 28.5 Receive test result from alpha test users
- 28.6 consult team to analyze alpha test result
- 29 Debug and modify Alpha
 - 29.1 Based on system test and alpha test create list to debug and modify
 - 29.2 Locate the bug or modifying location with in code and create list
 - 29.3 based on list consult with team for what to debug and modify
 - 29.4 debug and modify concluded modification at meeting
- 30 Beta test with out of company tester
 - 30.1 Setup beta test period and dates
 - 30.2 Compile project into release mode for beta test
 - 30.3 upload beta test into software download server
 - 30.4 contact customer announce the beta test and ask to use it and reply about it
 - 30.5 find 5 people who can use the software for beta test
 - 30.6 list the feedback from beta tester
- 31 Debug and modify Beta
- 32 Product Testing for final shipping
 - 32.1 with created demo try all possible data set made for acceptance test
 - 32.2 Consult with team come up with any issue or dislike that customer may bring up
 - 32.3 Rerun the demo again make familiarize for any case
- 33 Present Software to customer as Launch version
 - 33.1 compile the code into release package
 - 33.2 upload the code to test server
 - 33.3 link code to server, expose into local network
 - 33.4 Contact customer to present
 - 33.5 To customer show and let customer use the software them self
- 34 Acceptance test to customer
 - 34.1 Compile the code into final release mode
 - 34.2 contact customer and consult the date for installation
 - 34.3 visit customer for installation
 - 34.4 setup the system to customers' server
 - 34.5 test the set system on customers' server
 - 34.6 consult customer make managing date and time
 - 34.7 maintain the system as needed in future

II.IV.I PROJECT SCHEDULE

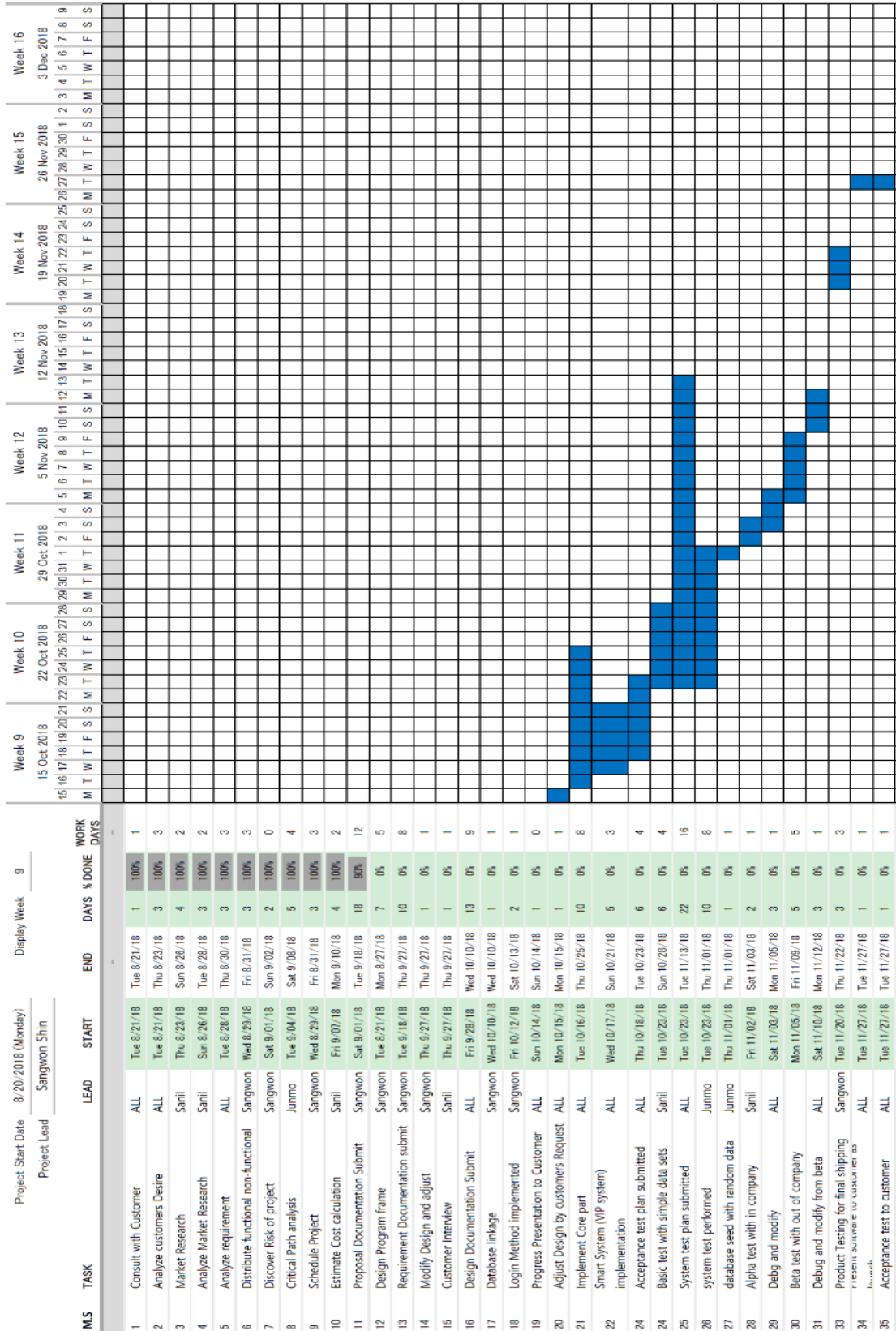
Gantt Chart Template © 2006-2018 by Vertex42.com.

[SR]

[International Restaurant of Brookings] Project Schedule

[JSS]

Gantt Chart Template © 2006-2018 by Vertex42.com



II.V.I RESPONSIBILITIES AND TEAMS

Name	Title	Responsibility	Contact Information
Sangwon Shin	CEO and Chief Engineer	Manage the company and team for keeping schedule of project and oversees development	sakuranohayu@gmail.com
Sanil Khamkar	Sales Division Manager	Manages sales and cost estimate of company and project	sanilpsy@gmail.com
Junmo Kim	Proposal Team Manager	Consult with customer engineer the requirement and propose to the customer.	junmo.kim@jacks.sdstate.edu
John Davis	Account Representative	Manages and stores any companies budget related information	jhdavis@gmail.com
Corey Bodoh	Data Manage Chief Engineer	Manages company data and any project related with database	cbodoh@gmail.com
Foster Green	Human Resource manager	Manage the companies employee and give support to employee if needed	fgreen@gmail.com
Nick Gohswick	Requirement Design Manager	Analise and create customers needs and create documentation	ngohswick@gmail.com
Okada Michitake	Sales Representative	Sells software to customer or propose PPP to customer to get contract	omichit@gmail.com
Roberta Martinaz	Cost Estimator	Calculate cost based on functionality of program and work ours and overall required cost	rmartinaz@gmail.com
Alexander Anderson	Customer Service Manager	Consult with any question and concerns customer has	alex.anderson@gmail.com

II.VI.I DOCUMENTATION PLAN

Document of following deliverables work and delivery schedule is following:

Deliverable	Description	Initial Date	End Date	Delivery Date
Proposal (Management Plan)	Propose the project, Plans and over all project description	2018/09/01	2018/09/13	2018/09/18
Requirement Documentation (RD)	Shows functional and non-functional requirements and how it performs	2018/09/18	2018/09/25	2018/09/28
Design Documentation (DD)	Shows hierarchy of design and how system is designed	2018/09/28	2018/10/10	2018/10/18
Acceptance Test Plan (ATP)	Plan for final product acceptance	2018/10/18	2018/10/21	2018/10/23
System Test Plan (STP)	Test case list and how to test for testing system	2018/10/23	2018/11/01	2018/11/13

II.VI.II DATA MANAGEMENT PLAN

With provided software, data regarded information is provided as follow:

DATABASE

Data base choice of Microsoft SQL will be used for following software to keep the data.

DATA ENCRYPTION METHOD

Windows BitLocker will be used for encrypting database. It has advantages with these

- Employee Login Information
- Name and address of Customer
- VIP level of customer
- Payment account information of customer

DATA IMPLEMENTATION

SQL management Studio will provide easy access and easy implementation of Microsoft SQL that our system will use. It is also possible to manage data from software itself.

TYPE OF DATA

- a) Text Data (String Data) for any alphabetic data such as name, address
- b) Numeric Data for any numbered data like credit card number and phone number
- c) Currency for money related data such as cost, payment

II.VI.III RISK MANAGEMENT PLAN WITH CONTINGENCY TABLE

Risk Management and contingency

The Risk that possible to happen is listed to avoid such risk to happens or in case of happens to have it prepared.

Term to know: Prob: probability / C.E: Chief Engineer / S.M: Sales Manager / P.M: Proposal Team Manager

RISK CONTINGENCY TABLE:

Item No	Risk Item	Prob. 1-10	Impact 1-10	Priority PxW	Action	Who	Cost %
1	Team Uncommunicative	5	8	40	Weekly Meeting / Communicate tools	C.E	\$5K
2	Programmer leave team	2	7	14	Equal assign of work to reduce impact	C.E	\$10K
3	Low budget	3	6	18	Convince customer with features	S.M	\$20K
4	Tight Scheduling	8	4	32	Spread Schedule more lenient	P.M	\$10K
5	System not meet requirement	6	3	18	FWBS to follow requirement	P.M	\$5K
6	Merging program fails	2	4	8	Uses Git to prevent this, can manually implement too	C.E	\$1K
7	System failure	4	9	36	Backup to use for reviving system	S.M	\$1K
8	Can not correct bug	6	7	42	Follow the test plan precisely to avoid	C.E.	\$3K

9	Fail to implement on server	3	9	27	Follow the given environment for server to prevent	S.M	\$5K
10	Incomplete test plan for test	5	5	25	Test plan must be reviewed very closely	C.E	\$3K
11	Customer doesn't like UI	9	4	36	Require document with UI mock up to convince or get idea from customer	C.E	\$10K
12	Data Loss by crash	4	6	24	Revise data from backup	C.E	\$10K
13	Miss lead of Requirement	3	5	15	Interview with customer with FWBS and Require document to prevent	P.M	\$7K
14	Requested for new functions	7	5	35	Allow flexible design of modifiability for future add-in	C.E	\$3K
15	Security attack on system	3	7	21	Windows Firewall to prevent outside attack	C.E	\$10K
16	Physical destruction of server	1	8	8	Using back up took and new machine revise system	C.E	\$5K
17	Power outage	3	6	18	Recommend installation of UPS to prevent failure by power outage	S.M	\$3K
18	System implemented to server does not show on online	2	3	6	Gives instruction of how to link the page to network or send engineer in case of failure	C.E	\$3K
19	Task Delayed	3	6	18	Manage team to follow the set date and overseas the team to make sure they are on track	C.E	\$6K
20	Project Design is ambiguous	4	7	28	Consult with team to make design with no ambiguous and set FWBS to make sure how system works in functions	C.E	\$10K

II.VI.IV TEST PLAN

This part will be filled later with System Test Plan is submitted later.

II.VI.V SECURITY PLAN

Our system will hold numerous valuable customer information and system it self is required to be secured. There is many possible attack such as D-DOS, malware, and even physical attack by person. Our system will support security as following:

Database Data, Store Data, System it self, Employee informations

SECURITY SOFTWARE

- ✧ Bitlocker Windows 10 Version 1511
 - Bitlocker will encrypt entire hard disk, only administer can decrypt the hard disk.
- ✧ Windows Defender 4.18.1807
 - Pre-installed and very light weight but strong anti-virus allows no back door to be planted
- ✧ Windows Firewall 1.275.1176.0
 - Pre-installed firewall of windows 10 allow no unauthorized entry such as non-permitted direct IP connection, random access attacks and

SECURITY HARDWARE

- ✧ Router Firewall
 - Our proposed hardware router have dedicated firewall implemented as hardware level to prevent any illegal access such as D-DOS to be prevented.

SECURITY OPERATION

- ✧ 24/7 Firewall running
 - The security program will run 24/7 without pause, except there are necessary to update the security program or hardware upgrade.
- ✧ 3 divided security
 - The security programs will operate in 3 different places. The first is data encryption in hard disk, virus check, and network security.

II.VI.VI BACKUP PLAN

Accidents happens and it is possible that precious customer data would be lost. Our system will have back up plan to prevent the loss of precious data.

DATA BACKUP WITH HARDWARE APPROACH

- Using hardware for backup will be automated to ease the user for backup. Hardware back up is efficient for when hard disk is physically broken or data is lost by physical contact or even allow to keep data even server swaps out to new hard disk.
- Any data stores into the server will be backed up immediately to the backup external hard disk bay. Using RAID-1 enabled hard disk bay will backup as soon as any new data comes in to the server. RAID-1 is also called STRIPED RAID because it creates exact copy of main hard disk on any time change to hard disk happens.

DATA BACKUP WITH SOFTWARE APPROACH

- Our engineer in the setup the system will setup the software backup using Windows Recovery tool version 1.2.4. This method is efficient when server requires roll-back to certain point.
- Our engineer will setup following back up to once of the week and as customer desire it is easily retractable and rolled back to wanted date of record. Such method will be useful when software fails without hardware failure or even operating system failure. By doing such method allow user to restore data back to any date on calendar.
- Software backup will store backup data into same hard disk, if hard disk is swapped to different, this method will not be available but hardware back up will fill this problem.

BACKUP MEDIA

- Customer can select any backup media want however 2 hard disk is mandatory for hardware backup.
 - 512GB USB Thumb Drive: can store up to 1 year worth data in maximum.
 - 700MB CD-RW: can store up to 1 month worth data in maximum
 - 1 TB External Hard Disk: can store up to 2 years worth data in maximum
 - Monthly 1TB 3rd party Network storage backup: can store up to 2 years worth data with monthly payment of \$10

BACKUP SCHEDULE

- The backup schedule will performed once a week, Friday 9:00pm automatically with all documents changed in data device that customer plugged in the server. The backup process can be apply by the customer and customer can choose which data to back-up.

II.VI.VII SERVER SELECTION

To prevent problems could happen by different hardware JSS have recommendation of the hardware to put server in.

MINIMUM REQUIREMENT OF SERVER HARDWARE

Name	Condition
Display	1280x720 or higher
CPU	2.0 Ghz of Intel Core architecture 2 nd Generation or higher
RAM	4GB of DDR3 or higher
Storage	1TB of HDD/SSD or higher
Keyboard	US-101Key USB 2.0 or higher
Mouse	USB 2.0 Laser mouse or higher
Hardware Backup	RAID 1 Capable 2bay RAID enclosure
Router	TCP/UDP Port openable with ac profile with NAS Backup Support or higher

MINIMUM REQUIREMENT OF SERVER SOFTWARE AND OTHER CONDITIONS

Name	Condition
OS	Microsoft Windows 10 PRO
Network Speed	10Mbps or higher
Anti-virous	Windows Defender 4.18.1807 or higher
Firewall	Windows Firewall 1.275.1176.0
Program management	Visual Studio 2017 Basic
Program Package	.NET CORE 2.0 .NET Framework IIS Control
Database	Microsoft SQL
Database management	SQL manager studio

HARDWARE OPTION

OPTION1

Hardware	Name	Cost	Spec
Display	Dell E1916HV	\$63	Res: 1366x768
Desktop	Dell Optiplex 790 SFF	\$135	CPU: i3 3.3Ghz RAM: 4GB Storage: 500GB
Keyboard	Amazon Basic Key	\$7	Wired USB 2.0
Mouse	Amazon Basic Mouse	\$7	Wired USB 2.0
Router	NETGEAR R6700	\$89	AC1750 Gigabit Dual Wi-Fi USB 3.0
RAID HDD SET	TerraMaster D2-310	\$170	2 Bay 3.5inch HDD USB 3.0 upto 24 TB
Total Cost	\$516		

OPTION2

Hardware	Name	Cost	Spec
Display	Dell E1916HV	\$63	Res: 1366x768
Desktop	HP8300Elite	\$194	CPU: i5 3.2Ghz RAM: 8GB Storage: 500GB
Keyboard	Amazon Basic Key	\$7	Wired USB 2.0
Mouse	Amazon Basic Mouse	\$7	Wired USB 2.0
Router	ASUS RT-ACRH13	\$75	AC1300 Gigabit Dual Wi-fi USB 3.0 NAS
RAID HDD SET	Terramaster D2-310	\$170	2 Bay 3.5inch HDD USB 3.0 upto 24 TB
Total Cost	\$516		

II.VII.I DELIVERABLES

1. Requirement Documentation (RD)

Requirement Documentation is the description of the software, will have requirements to fulfill which divided into non-functional and functional requirements.

2. Proposal (Management Plan)

Proposal explains what software can do and how organization planned for development of project. This also used as guideline of the project and legal document of the project

3. Design Specification (DS)

Design Specification provides overview and how project is designed, also provides system design and architecture of the project

4. Acceptance Test Plan (ATP)

Acceptance Test Plan is list of operations to perform software demo, describes each operations of the software with description of functionality

5. System Test Plan (STP)

System test plan are formed with features to be tested, testing methodology to use and how will it be tested with procedures that has been documented.

6. Source Code (Programs)

Program code it self will be delivered to customer for future modification and sales.

7. Shippable Software Package

Compiled software will delivered to install in proposed hardware environment for right away usage of software

3. ESTIMATE

III.I.I JSOMO MODEL

Following JSOMO MODEL is calculated in purpose of getting estimates. Such estimate is possible from our 8 years of experience of projects and calculated out and provided with table

JSOMO PARAMETERS (COST ESTIMATION)

MODE	Basic		Intermediate	
	a	b	a	b
Organic	2.0	1.02	3.0	1.08
Semidetached	2.8	1.08	2.8	1.15
Embedded	3.6	1.14	2.6	1.22

JSOMO PARAMETERS (TIME)

MODE	Basic		Intermediate	
	c	d	c	d
Organic	2.1	0.34	2.1	0.34
Semidetached	2.1	0.31	2.1	0.31
Embedded	2.1	0.28	2.1	0.28

1. ORGANIC: LESS COMPLEX AND FLEXIBLE PROJECT
2. SEMIDETACHED: AVERAGE COMPLEXITY PROJECT
3. EMBEDDED COMPLEX, REAL-TIME DEFENSE PROJECT

FORMULA OF JSOMO

Our JSOMO model have follows calculation of followings:

With in JSOMO formula, following constants are used to represent each of it:

E = Estimate Cost, S = Size or Line of Code, a, b, c, d = Complexity constants

Using these constant, we have calculated out following:

$E = a * S^b(x)PM$ (Person Months)

Where $X = \prod_{i=1}^{15}(Xi)$ as 15 as the number of prediction of our ability to 5 years, and Xi is constant value we have acquired from experiences and previous project.

With Time consumption will be derived from Estimate cost and time complexity constant of following: **$T = c \cdot E^d$**

JSOMO COST DRIVERS

Product Attributes

RELY	Required software reliability
DATA	Size of the databases
CPLX	Complexity of the system

Computer Attributes

TIME	Execution time constraints
STOR	Storage constraints
VIRT	Virtual machine volatility
TURN	Computer turnaround (response) time

Personnel Attributes

ACAP	Capability of the analysis
AEXP	Applications experience
PCAP	Capability of the programmers
VEXP	Virtual machine experience
LEXP	Programming language experience

Project Attributes

MODP	Use of modern programming practices
TOOL	Use of software development tools
SCED	Existence of required development schedule

RELIABILITY CATEGORIES AND MULTIPLIERS

Tolerance	Effect	Multiplier
Very low	Slightly inconvenience	0.50
Low	Losses easily recovered	0.68
Nominal	Loss recoverable with moderate difficulty	0.90
High	High Financial loss	1.10
Very high	Risk to human life	1.35

JSOMO COST DRIVER MULTIPLIER VALUES

Cost Driver	RATINGS					
	Very Low	Low	Nominal	High	Very High	Extra High
<i>Product</i>						
RELY	0.50	0.68	0.90	1.10	1.35	--
DATA	--	0.74	0.90	1.03	1.11	--
CPLX	0.45	0.65	0.90	1.10	1.25	1.55
<i>Computer</i>						
TIME	--	--	0.90	1.06	1.25	1.56
STOR	--	--	0.90	1.01	1.16	1.46
VIRT	--	0.67	0.90	1.10	1.25	--
TURN	--	0.67	0.90	1.02	1.12	--
<i>Personnel</i>						
ACAP	1.21	0.99	0.90	0.81	0.68	--
AEXP	1.04	0.93	0.90	0.86	0.79	--
PCAP	1.17	0.97	0.90	0.81	0.67	--
VEXP	1.08	0.90	0.90	0.85	--	--
LEXP	1.01	0.87	0.90	0.90	--	--
<i>Project</i>						
MODP	1.11	0.90	0.90	0.86	0.79	--
TOOL	1.11	0.90	0.90	0.86	0.80	--
SCED	1.10	0.88	0.90	0.99	1.07	--

ESTIMATE TABLE

FWBS Number	Description	Lines of Code	Estimated Hour	Cost (Wage*hour)
a.a.a	Mobile webpage	1000	20	\$760
a.a.b	Desktop webpage	1000	20	\$760
b.a.a.a	Weekly sales report	500	10	\$380
b.a.a.b	Monthly sales report	1000	40	\$1520
b.a.b	Food, Beverage, Best and Worst sales report	1500	60	\$2880
c.a.a	Credit card transaction	1000	40	\$1520
c.a.b	Received card transaction	1000	40	\$1520
d.a.a	Create stock report	500	10	\$380
d.a.b	Alert low stock	1000	40	\$1520
d.a.b.a	Set alert range	100	5	\$190
d.a.c	Calculate used ingredients	1000	40	\$1520
d.a.d.a	Force purchase stock	1500	80	\$3040
d.a.d.b	Purchase stock	2000	100	\$3800
d.a.d.b.a	Set purchase property	500	20	\$760
d.a.d.c	Calculate ingredient price	1000	40	\$1520
d.a.d.c.a	Minimum pay purchase	1000	40	\$1520
d.a.e.a	Keep minimum stock	200	4	\$152
e.a.a.a	New customer promotion email	300	7	\$266
e.a.b.a	Send promotion code email	100	4	\$152
e.a.c	Gift card generation	100	4	\$152
e.a.d.a	Customer feedback email	500	10	\$380
e.b.a	Send email list	400	8	\$304
f.a.a.a	Reservation calendar	1000	20	\$760
f.a.b.a	Set decline range	600	6	\$228
f.a.b.a.a	Late cancellation	300	3	\$114
f.a.b.b	User cancellation	200	4	\$152
f.a.c.a	Set reminder email	200	4	\$152
f.a.d.a	Check reservation status	200	4	\$152
f.a.d.b	Make reservation	500	4	\$152
g.a	VIP promotion	500	4	\$152
g.b	VIP discount	500	4	\$152
g.c	VIP upgrade	500	4	\$152
g.d	VIP reservation	1000	20	\$760

Total	22700	719(hrs.)	\$27322
-------	-------	-----------	---------

Total Cost Estimation = JSOMODEL+ Activity

The X value can be obtained by the JSOMODEL Cost Driver Multiplier Values Table,

$$X = \pi_{i=1}^{15} \text{ (Using Nominal Rating)}$$

$$X_i = 1.1 * 1.03 * 1.1 * 1.06 * 1.01 * 1.1 * 1.02 * 0.81 * 0.86 * 0.81 * 0.85 * 0.9 * 0.86 * 0.86 * 0.99 = 0.4732$$

Then we will use value of X to compute Estimation,

$$E = a (S^b)X \text{ (a = 3.0, b = 1.08 for organic model of intermediate, total lines of code=22700)}$$

$$E = 3.0 * (22700^{1.08}) * 0.4732 = 71890.89(\text{JSOMODEL})$$

Therefore, total cost estimation is,

$$\text{JSOMODEL} + \text{Activity Cost} = \$71890.89 + \$27322 = \$99212.89$$

Lines of Code

Estimate of the number of lines of code needed to complete specified functionality.

Complexity

- Low – a relatively low degree of complexity for module completion.
- Nominal – a typical degree of complexity.
- High – the module involves significant complexity for completion.

Complexity

- a 1-10 scale of the amount of effort required to complete the functionality. 1 represents low effort with 10 indicating much effort to complete.

4. TERMS

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5. TERMINOLOGY

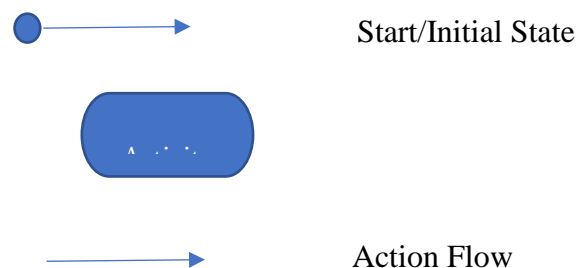
1. Acceptance Test:

The Acceptance Test phase comes after the System Test phase in which the completed product or application is handed to the customer for the acceptability test. The product or application must meet the business requirements.

2. Activity Graph:

An Activity Graph shows the flow of activities in a system.

Activity Symbols:



3. Alpha Test:

Alpha Testing occurs before Acceptance Test that is, it is done by the development team as a last test before releasing the software to the customer.

4. Beta Test:

Beta Testing is done to mostly gather feedback from an external group of users outside of the company to discover bugs before releasing it to the customer.

5. JSOMO Model:

The JSOMO Model is a cost estimation model based on the number of lines of code. The model parameters are derived from the data based on previous projects.

Basic JSOMO calculates the Effort(cost) that is estimated on the lines of code.

Intermediate JSOMO is based on various factors such as reliability, capability which computes a set of “cost drivers” that include hardware, project attributes etc.

6. Critical Path Analysis:

Critical Path Analysis is an algorithm which is required to plan a set of activities for completing a project.

7. Debug:

Debugging is a process in which a software program is analyzed and corrected for any errors.

8. Functional Requirements:

Functional Requirements are services that a system must provide and react to particular inputs and how it behaves in particular situations.

9. Functional Work Breakdown Structure (WBS):

Functional WBS is hierarchical descriptions of all the functions that are going to be performed to meet the customer needs.

10. Gantt Chart:

A Gantt Chart shows a set of activities performed with a specific time frame.

11. Non-Functional Requirements:

Non-Functional Requirements are constraints on the services or functions offered by the system such as timing constraints, constraints on the development process.

12. Risk Analysis:

Risk Analysis refers to identification of risk in terms of process and plan, products and artifacts and other resources.

13. Scope:

Project scope is a part of project planning that involves documenting a list of specific goals, deliverables, tasks, costs and deadlines.

14. Raid-1:

Raid-1 is a technique that stores the copy of a data on separate disks that is two or more copies of each block are stored on different disks.

15. Network Attached Storage:

Network Attached Storage allows the use of regular hard disk to become network drive so a user can use it as a simple server.

16. Domain:

Domain refers to a field of activity where a particular problem is solved for a software program.

17. Rollback:

Rollback refers to an operation performed on the database to recover in its previous state in case of some fault.

18. BitLocker:

BitLocker is a full disk encryption designed to protect data by providing encryption for all volumes of disk.

19. Milestone:

Milestone refers to the progress achieved in accordance to the plan.

6. MEETING LOG

Developer Team meeting every Monday and Friday 2 PM

Log up to Sep/10th

08/27th Monday

Setup basic rules, environment of development, communication tools

08/31st Friday

Composed Requirements, functional non-functional ideas

09/03 Monday

Conversation about market research progress, how to setup Proposal documentation, Continuous functional non-functional ideas and organizing, FWBS hand written template

09/07th Friday Meeting

Assigned following work to following people:

Activity graph – Junmo Sangwon

Critical path – Junmo Sangwon

Project Schedule – sangwon

Risk contingency table - sangwon

Test plan – sangwon

Security plan - sangwon

Cost estimation - Sanil

Terminology - Sangwon

Log – Sangwon

09/10th Monday Meeting

Check progress of previously assigned works

Future meeting plans

Meetings are driven and will be drive as following method:

Chief Engineer will assign jobs with due date to team members at meeting

Meeting will be only on purpose of checking up progress of assigned job and assigning new job and consult the back up strategy if task falls behind.

All members are required to have assigned task done prior to meeting and only report to the team for progress.

7. CITATION

[1] <https://www.wix.com/dashboard/a84e845f-3996-4a5f-8e82-25ec177d762f/home>

[2] <https://www.websitebuilderexpert.com/cost-to-build-a-website/>

[3] <https://www.atilus.com/what-does-a-website-cost-web-site-development-costs/>