



Cash Doctor

Mobile Application 3.0

Team 12
FCR ARB



Team Strengths & Weaknesses

Strengths

- Operational: Coordination and Cohesiveness
 - On time delivery of all documents
- Technical: Savvy to new technology

Weaknesses

- Operational: Schedules
 - Communicating over electronic media is difficult
- Technical: Proprietary Software usage



Operational Concept Description



System Purpose

Mobile application that provides

- The primary purpose of the Cash Doctor Mobile Application 3.0 is empowering consumers with control over the cost and quality of care by sharing pricing and review information of healthcare.

Shared Vision



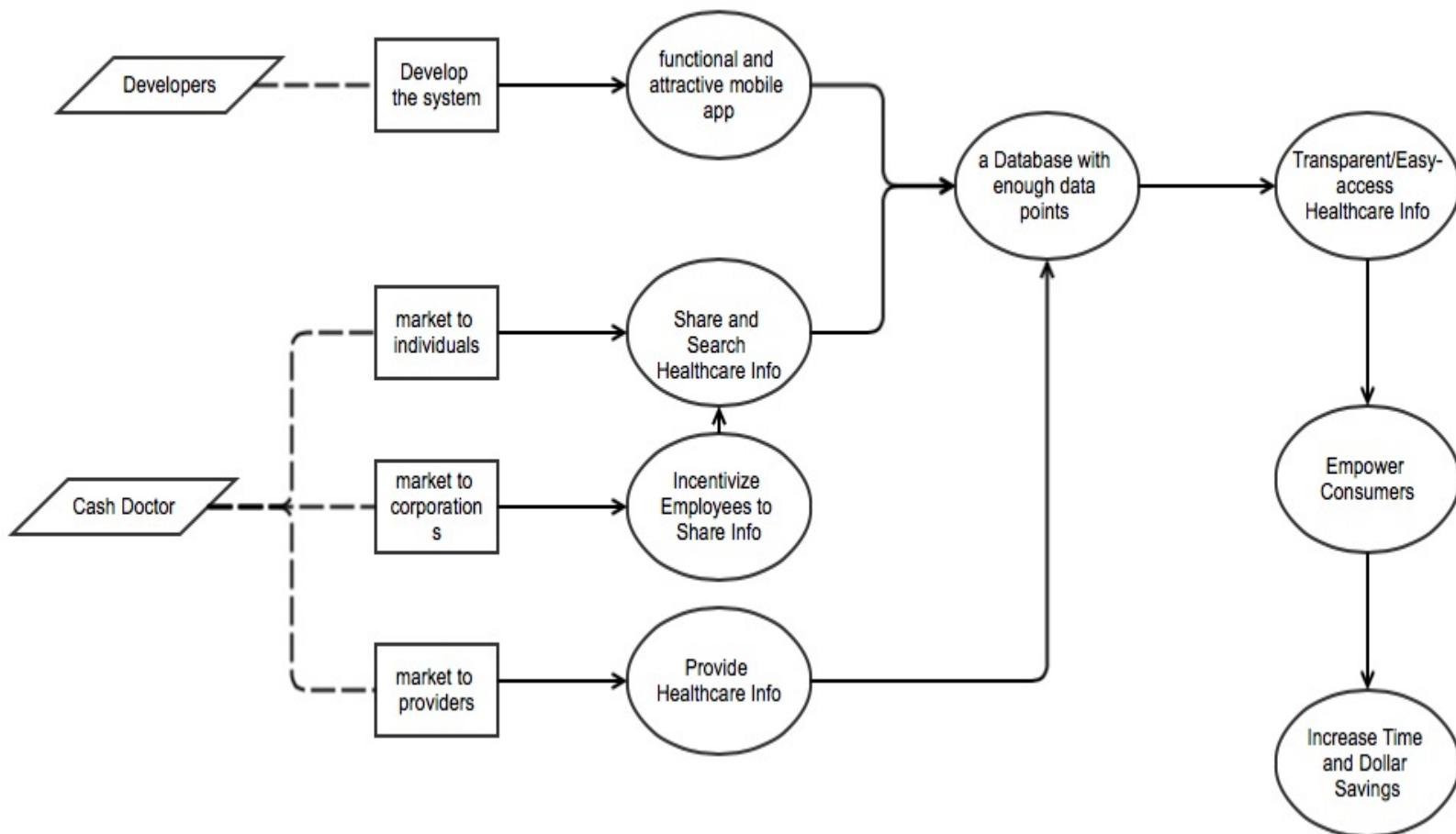
ASSUMPTIONS

- Users will share info and provide reviews.
- Corporations will push their employees to use it via incentives.
- People will move away from insurance providers if it saves them money.
- Providers will benefit from using cash.
- Providers will use the system.

Stakeholders (Who?)	Initiatives (What?)	Value Proposition (Why?)	Beneficiaries (For Whom?)
<ul style="list-style-type: none"> • Developers • Cash doctor 	<ul style="list-style-type: none"> • Develop the system (for price & review/rating). • Market the app/system <ul style="list-style-type: none"> • Corporate marketing strategy. • Individual marketing strategy. • Provider marketing strategy. 	<ul style="list-style-type: none"> • Increase price transparency of health care costs. • Increased time and dollar savings for patients and healthcare consumers in general. • Empowering the consumer to make a more educated choice about healthcare expenditures • Enable consumers/patients to evaluate or provide feedback on healthcare services for community benefit. • Revolutionize the industry and profit. 	<ul style="list-style-type: none"> • Healthcare consumers - individual and corporate. • Health care providers. • Cash doctor (includes student team)
Cost		Benefits	
<ul style="list-style-type: none"> • Development time (in person-hours) • Hardware • Software • Network • Maintenance • Miscellaneous 		<ul style="list-style-type: none"> • Consumers and corporations save money • Consumers have access to healthcare, information, and networks (intangible) • Doctors make more money • Usage <ul style="list-style-type: none"> ◦ Registered users ◦ Downloads ◦ Rate of access ◦ Rate of sharing • Time saved in finding coverage 	

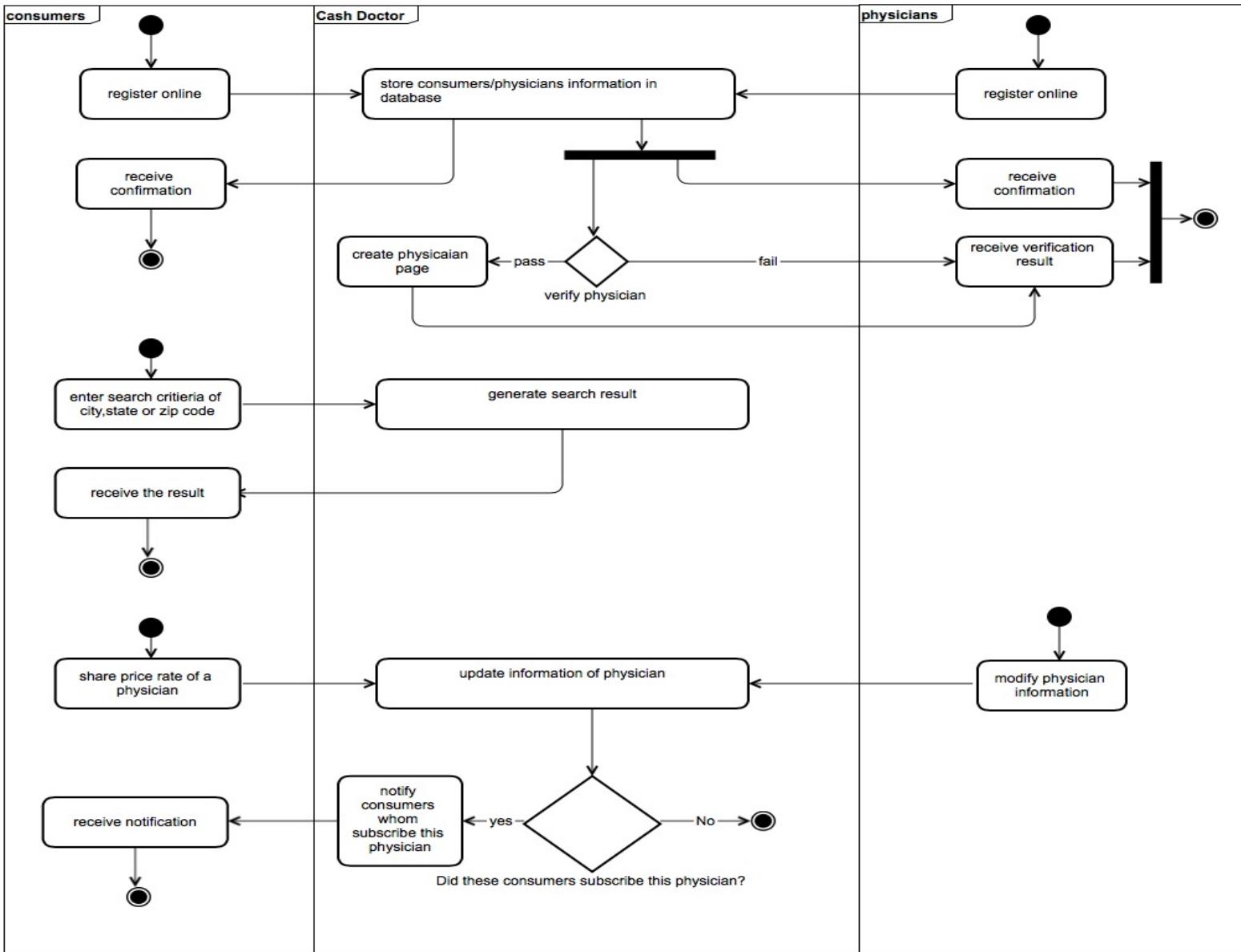


Benefit chain



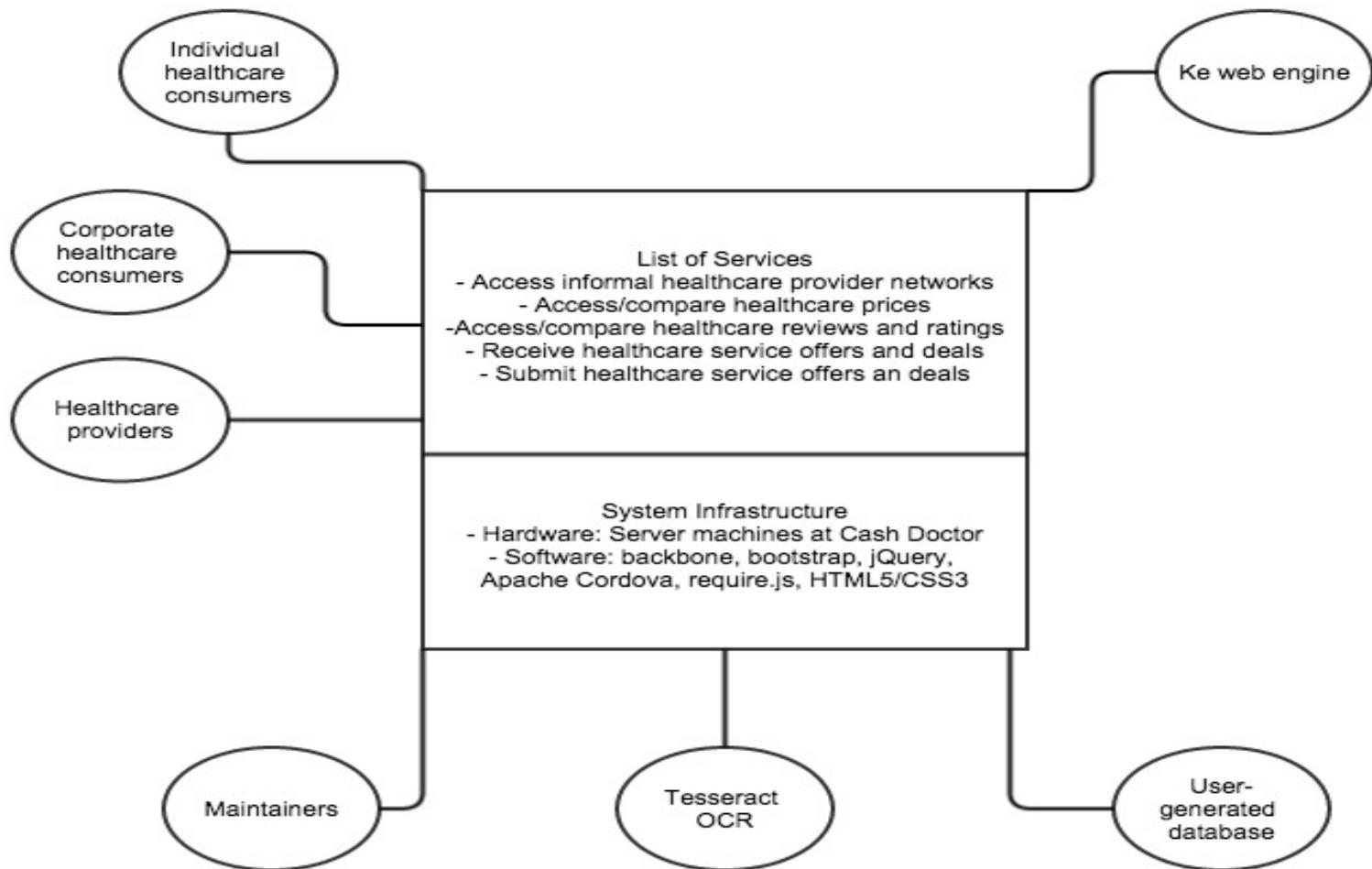


Proposed System – Business Workflow





Proposed System - System Boundary





Capability Goals

Capability Goals	Priority Level
OC-1 Manual Information Search: The application should enable consumers to search healthcare information by imputing location, code, price and specialty.	Must have
OC-2 Geo-Location Search: The application should be able to find consumers' location and show relevant providers around.	Must have
OC-3 Price Comparison: The application should enable consumers to compare price between different providers.	Must have
OC-4 User Registration: The application should enable consumers to register as a user.	Must have
OC-5 Price Sharing: The application should enable users to share healthcare services price by manually imputing or capturing invoice.	Must have
OC-6 Provider Rating: The application should enable users to rate providers and create a review.	Must have
OC-7 Networking: The application should enable users to create a private network and join existing networks.	Must have
OC-7 Profile Management: The application should enable users to create and manage a health profile.	Must have
OC-8 Notification Management: The application should enable users to subscribe from providers to get update notifications. And it also allows users to filter notifications.	Must have

Goals



Level of Service Goals	Priority Level	Referred WinWin Agreements
LOS-1 Number of users: System should be able to support at least 1000 simultaneous users.	Must have	WC_3080

Organizational Goals

- OC-1: Increase the price transparency for all healthcare services consumers.
- OC-2: Increase sales for Healthcare provider.
- OC-3: Reduce costs for corporations who pay healthcare bills for their employees.



Prototype



Personas – Esther Stevenson

Demographic

Age: 63

Occupation: Retired

Hometown: Beverly, MA

Marital Status: Married

Attributes

- Often ill
- Fixed-income, tight budget
- Cares about self- and husband's health



Scenario

Esther takes the lead, as many women do, in running the healthcare decisions for her family. She lives on a fixed income of her pension and social security, which means money is tight. Given the number of hospital and doctor's visits per year she and her husband make, she is constantly looking for ways to find more affordable care and would like the opportunity to save money on expensive medications and treatments.



Personas – Harlow LaBarge, M.D.

Demographic

Age: 42

Occupation: Private Practice Doctor

Hometown: Land-O-Lakes, FL

Marital Status: Married

Attributes

- Cares about patients, looking to make a connection
- Income squeezed by insurance companies
- Wants to stay independent

Scenario

Harlow is a private practice physician who is looking for ways to bring in patients and make a personal connection. This is his value-added over large hospital groups that are buying up independent doctors. He would love the chance to broadcast his personality to new patients and existing ones. Given the way insurance companies squeeze doctors, he would also like to be able to make more money per patient visit given that he is a busy man.





Personas – David Sterling

Demographic

Age: 55

Occupation: CEO

Hometown: Seattle, WA

Marital Status: Married

Attributes

- Worried about bottom line
- Resistant to layoffs of skilled workers
- Likes creative solutions

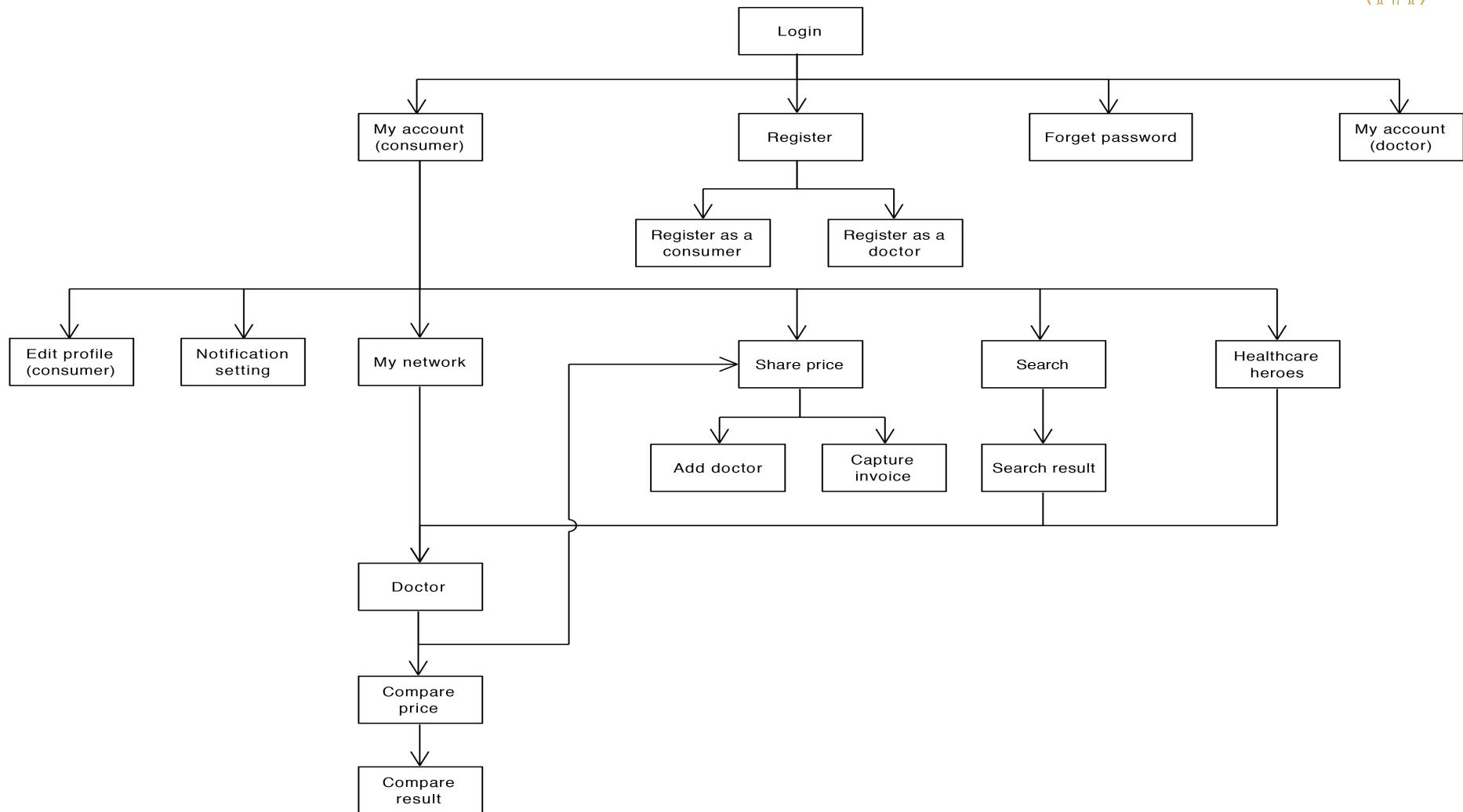
Scenario

David is new to this role and is replacing a CEO who failed to consistently meet investor targets for profit growth. In a low growth world, David is worried about how to increase profits without continuing with layoffs, which are bad for PR. He is open to new and creative ways that he can reduce large costs within the company without much investment.



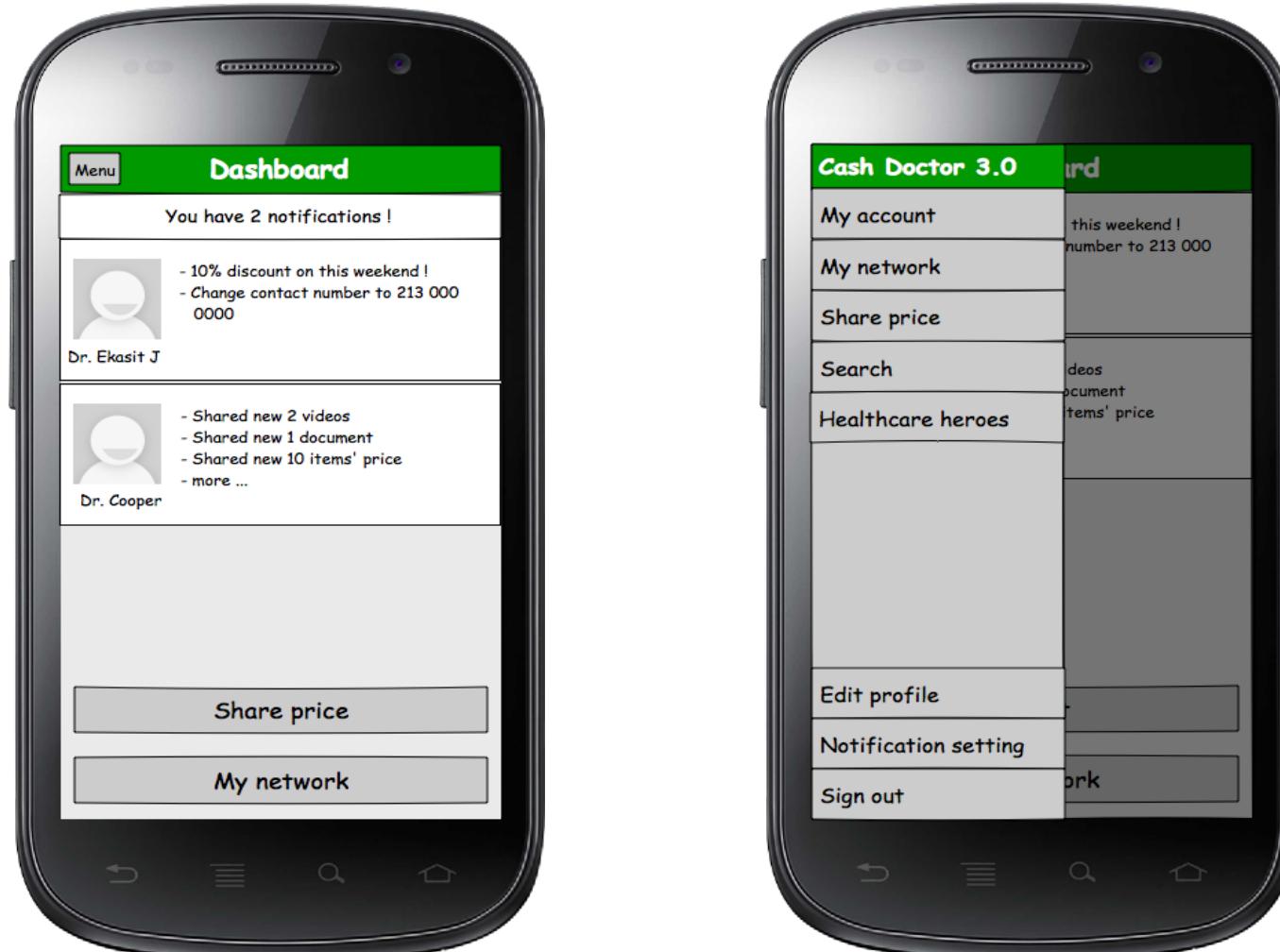


Prototype





My Accounts Page





Search Doctor

Two smartphones are shown side-by-side, illustrating a mobile application for searching doctors. The left phone displays the search interface, and the right phone displays the search results.

Search Screen (Left Phone):

Menu **Search** Back

Fill up the field you want to search by

Geolocation

Code

Doctor name

Specialty

Lifestyle

Rating

Search Result Screen (Right Phone):

Menu **Search result** Back

Found 4 doctors

 Dr. JLO
General dentist
Work at USC hospital

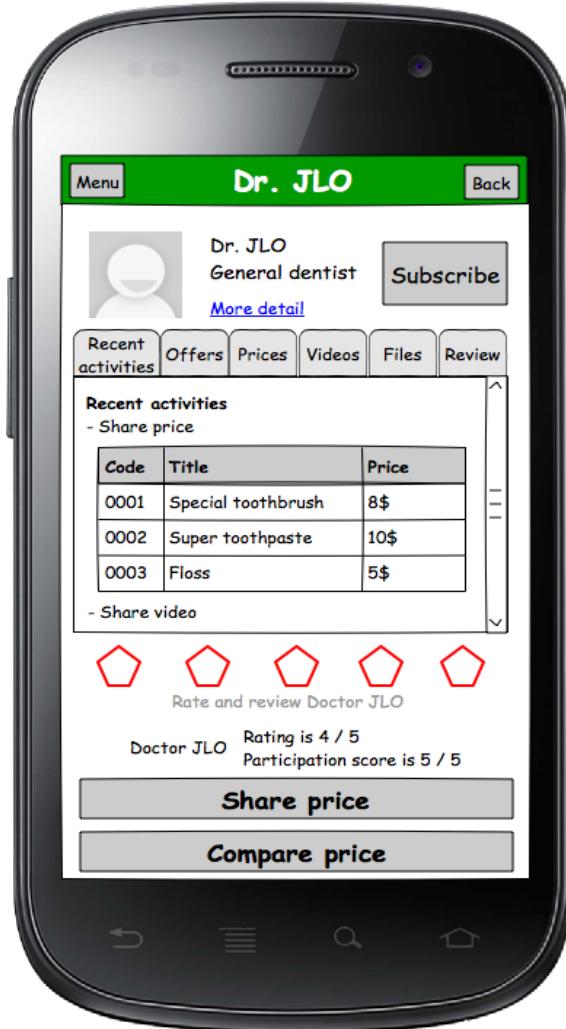
 Dr. Ekasit
General doctor
Work at USC hospital

 Dr. John Walk
General dentist
Work at Sunflower clinic

 Dr. Johnson
Dentist
Work at Vermont Clinic



Doctor Profile



Code	Title	Price
0001	Special toothbrush	8\$
0002	Super toothpaste	10\$
0003	Floss	5\$

- Share video



Rate and review Doctor JLO

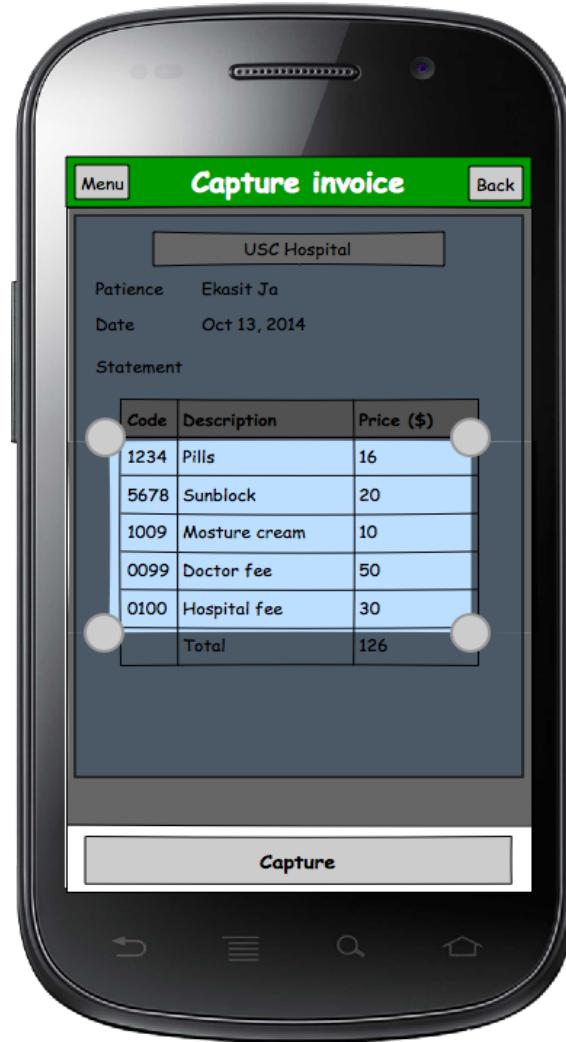
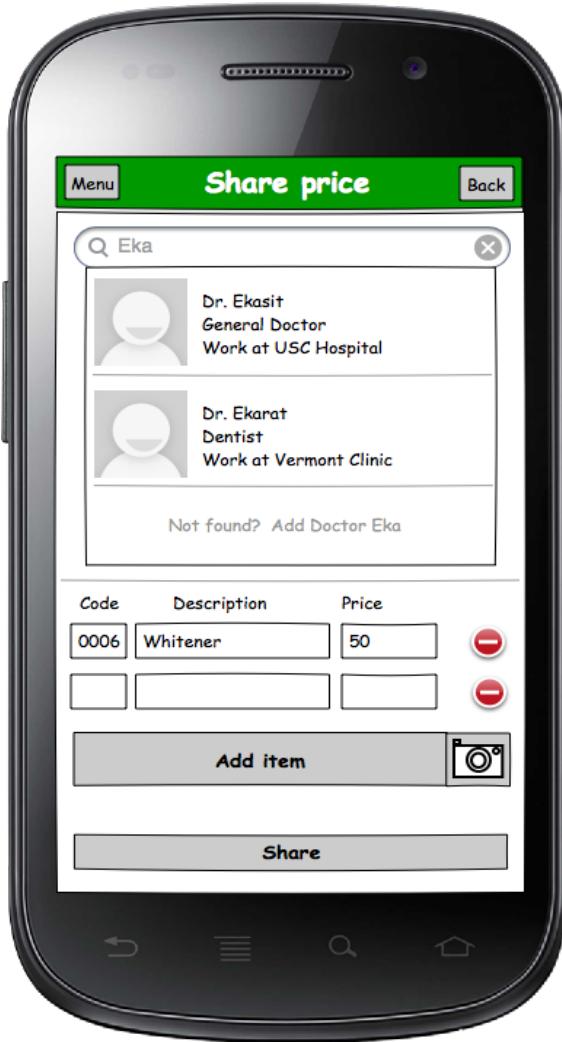
Doctor JLO Rating is 4 / 5
Participation score is 5 / 5

Share price

Compare price



Price Sharing





High-risk feature

WC_3082: An individual consumer can capture an image and code an invoice for sharing

We have 2 Candidates:

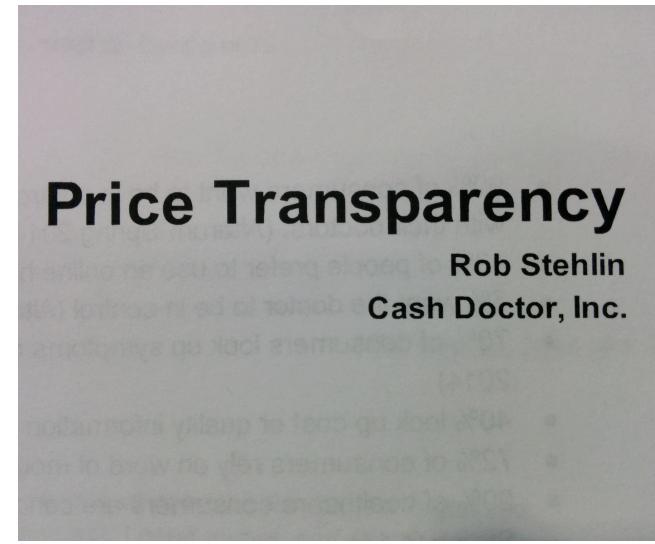
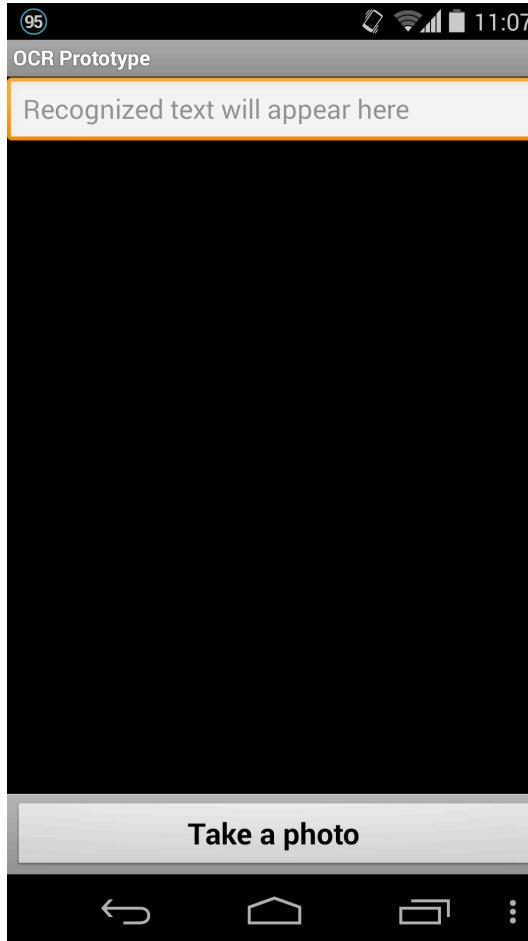
1. Tesseract OCR
2. Java OCR

Reasons for choosing Tesseract OCR:

1. Train Data already available.
2. Better community.



Tesseract OCR





Demo



REQUIREMENTS



Agreed Win Condition:General



- System should be able to support at least 1000 simultaneous users.
- System should run on iPhone, Android, and Windows phone.
- System should be accurate within a 5 mile radius at a 90% confidence interval.
- System must be appealing to the target consumer (80% female).
- The system must be easy to use and intuitive by all users.
- The system shall integrates with the existing database at Cash Doc.



Agreed Win Condition: User

- An industry consumer can manually enter price information for sharing.
- As a consumer I can compare healthcare prices.
- As a consumer I can create a review of a provider.
- *As a consumer I can create a private network and join existing networks.*
- As a consumer I can access my existing account by user ID and password, I can view my existing dashboard.
- As a consumer I can register as a user.
- A consumer can search for healthcare pricing, provider by location, price, code, specialty.



Agreed Win Conditions: User

- As a user, I am able to create a health profile that will attach profile specific offers from providers.
- As a user I gain access to features when I share health care pricing.
- As a user I can subscribe to notifications so that I have access to relevant up-to-date information.
- As a user I can filter notifications I Want to receive relating to the location, price, code, specialty, and provider.
- As a user I can find my current location so that I can access relevant providers in and around area (some mile radius).
- As a consumer I can rate a provider.



Agreed Win Conditions: Providers

- As a provider I can share pricing, offerings, and other content so that I can drive traffic and increase sales.
- As a provider I am able to push content to users that is unique to their personal profile.
- As a provider I can send offerings to users that are connected to my network so that I drive volume and increase sales.



Agreed Win Conditions: Corporations

- As a corporation I can see my employees and the prices they've shared so that can encourage participation.

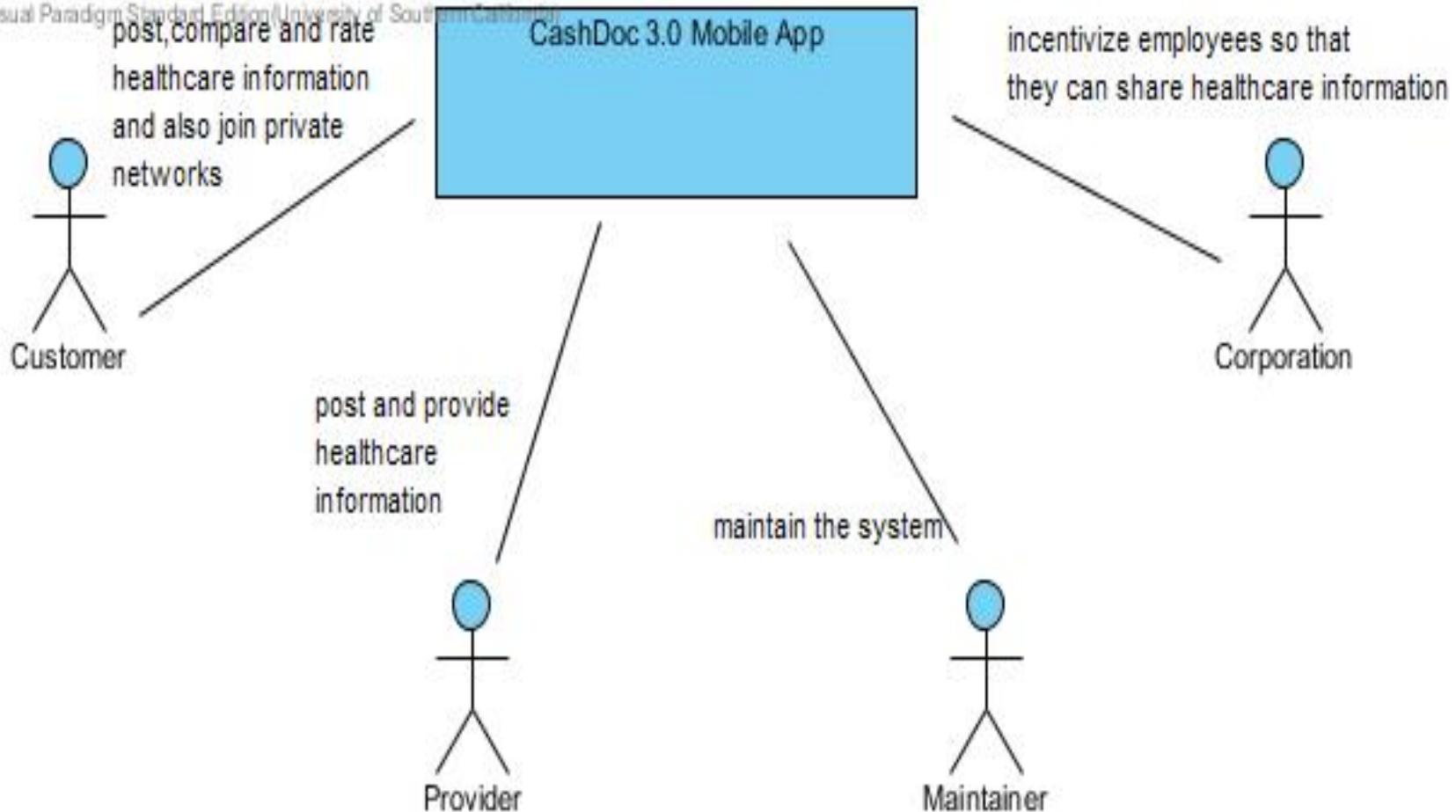


System and Software Architecture Description



System Context Diagram

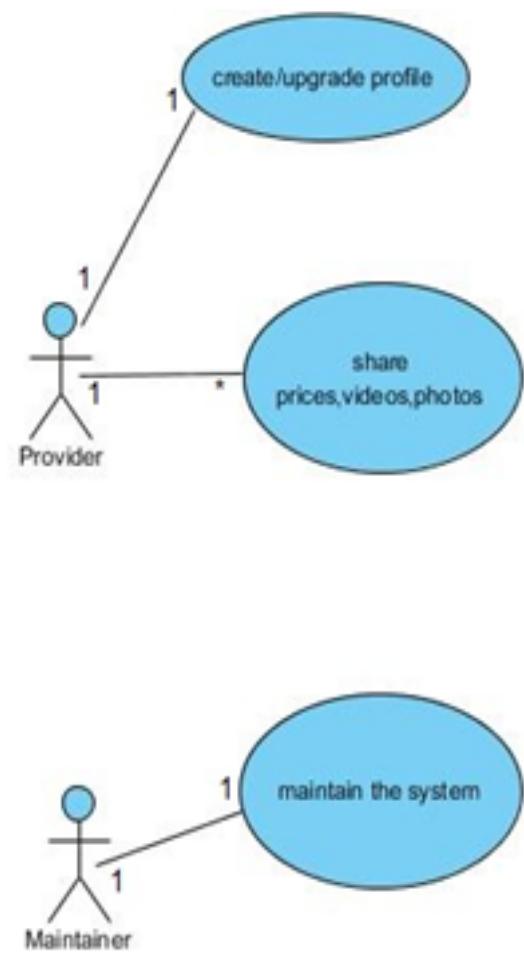
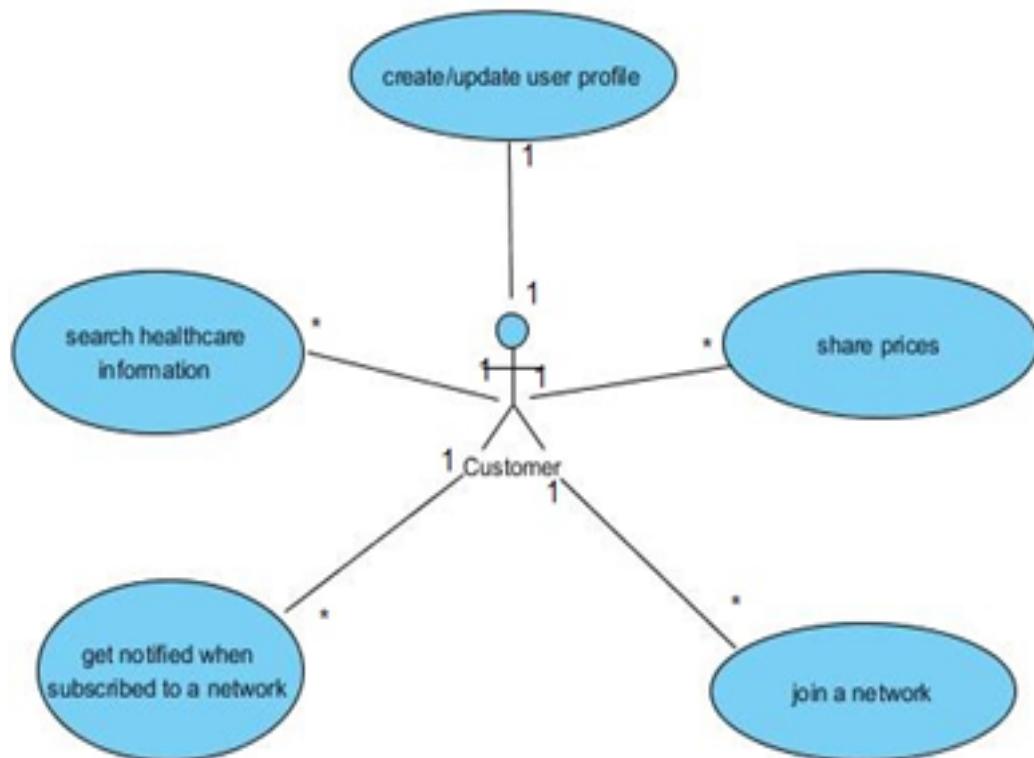
Visual Paradigm Standard Edition (University of Southern California)





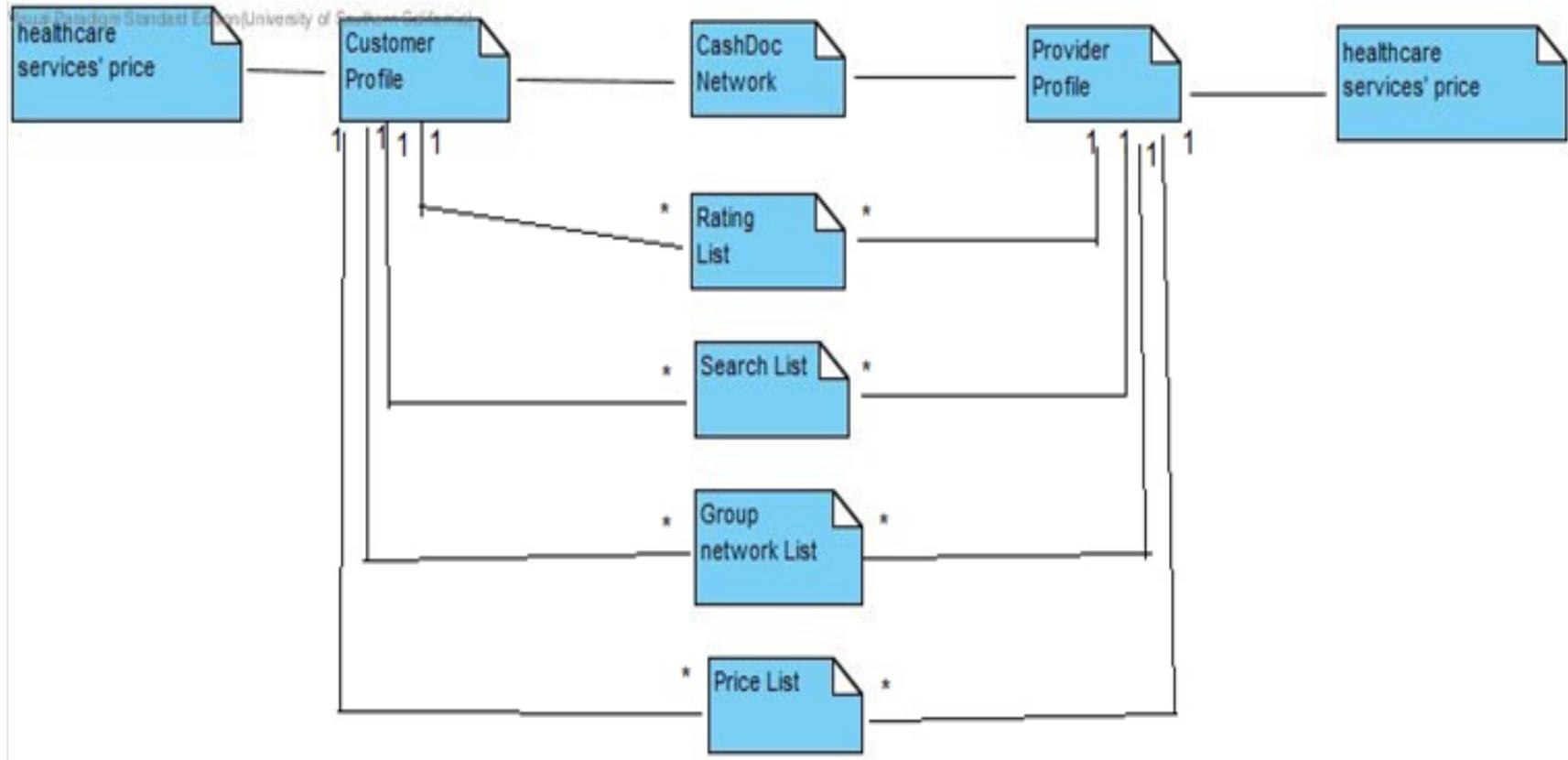
Use Case Diagram

Visual Paradigm Standard Edition (University of Southern California)





Artifacts and Information Diagram





USE-CASE GRID

ID	NAME	PRIMARY ACTORS
UC1	Create/Login customer profile	Customer
UC2	Update customer Profile	Customer
UC3	Prices shared by the customers	Customer
UC4	Search healthcare information	Customer
UC5	Create a network	Customer
UC6	Join an existing network	Customer
UC7	Get notified based on the network subscribed for	Customer
UC8	Create/Login Provider profile	Provider
UC9	Provider shares Healthcare Information	Provider
UC10	Maintain the system	Maintainer
UC11	Customer can rate/review a provider	Customer
UC12	Customer can compare medical price information	Customer



CREATE/LOGIN CUSTOMER PROFILE, CREATE/LOGIN PROVIDER PROFILE

Identifier	UC1,UC8:Login
Purpose	Determines if a person logging in to the system can be authenticated, and, if so, what the person's privileges are as a user of the system, i.e., what the person is authorized to do when using the system
Requirements	Authorization and Authentication
Development Risks	None
Pre-conditions	CMS database should be initialized
Post-conditions	If customer is authorized s/he is given access to "My accounts" page; otherwise, s/he is denied access to the system.

Typical Course of Action:

Login-Successful

Alternate Course of Action:

Login-New Account

Alternate Course of Action:

Login-Failure

Alternate Course of Action:Login:Forgotten Password



UPDATE CUSTOMER PROFILE

Identifier	UC2
Purpose	To provide a homepage for the user wherein the user gets to know all the features available to him like price posting, viewing different networks where he can join, searching various healthcare services.
Requirements	None
Development Risks	None
Pre-conditions	The user should be logged in
Post-conditions	The user can explore all the features available to him in his account

Typical Course of Action: Ability to go to links like price posting, join network , search for a provider etc.



PRICES SHARED BY THE CUSTOMERS

Identifier	UC3
Purpose	Uploading medical bills so that the cost of that particular healthcare service is known. The uploading can be done manually or through an OCR capture
Requirements	None
Development Risks	OCR is not accurate and will not recognize handwritten medical bills
Pre-conditions	UC1,UC2
Post-conditions	If the price and other fields are valid, the information is updated in the database.

Typical course of action: Share Price manually
Share Price through OCR capture



SEARCH HEALTHCARE INFORMATION

Identifier	UC4
Purpose	Users can search doctors based on multiple conditions like locality, price, service etc
Requirements	None
Development Risks	None
Pre-conditions	UC1, UC2
Post-conditions	The user will be able to view a list of all the doctors and their price based on multiple conditions specified.

Targeted form of Action: Retrieves information based on search criteria

Alternative form of Action: Records not found



CREATE A NETWORK

Identifier	UC5
Purpose	The user can create his own network which basically contains all the doctors he would want to subscribe to. The user can also join an existing network where he would want to receive updates from.
Requirements	None
Development Risks	None
Pre-conditions	UC1, UC2
Post-conditions	The user creates a new network

Target course of action: New network gets created



GET NOTIFIED BASED ON THE NETWORK SUBSCRIBED FOR

Identifier	UC7
Purpose	The
Requirements	None
Development Risks	None
Pre-conditions	UC4,UC6
Post-conditions	The user will be able to get up to date information about all the notification posted by their providers

Target Action of Course: User gets information about the provider he has subscribed to.



CUSTOMER CAN RATE/REVIEW A PROVIDER

Identifier	UC11
Purpose	The user has the ability to rate or review a provider
Requirements	None
Development Risks	None
Pre-conditions	UC4
Post-conditions	None

Target Action of Course: The customer rates and reviews a provider and information is updated in database



CUSTOMER CAN COMPARE MEDICAL PRICE INFORMATION

Identifier	UC12
Purpose	The user has the ability to compare medical price information
Requirements	None
Development Risks	None
Pre-conditions	UC4
Post-conditions	None

Target Course of Action: The user compares the result he has got from his search results



PROVIDER SHARES HEALTHCARE INFORMATION

Identifier	UC9
Purpose	The provider will be able to share all the healthcare services that he offers in the form of blogs, videos, pictures etc.
Requirements	None
Development Risks	None
Pre-conditions	UC8
Post-conditions	The updated information is sent out to every customer who has subscribed to this provider.

Target Course of Action: Updated information is notified to all customers who have subscribed for the network.



MAINTAIN THE SYSTEM

Identifier	UC10
Purpose	The maintainer is responsible for approving the new creation requests
Requirements	None
Development Risks	None
Pre-conditions	UC1
Post-conditions	The new users are approved by the maintainer

Target Course of Action: The new users are approved by maintainer



Life Cycle Plan



Purpose of the LCP

- The LCP helps in identifying tasks and their corresponding timelines.
- The LCP also lists down all the milestones and artifacts delivered according to the phases.
- It lists out the strategies to be followed in the project and also the skills required by each team member.
- The LCP is documented to provide details as to what is the status of the project and what is the future plan. It lists down the tools and resources being used in the project.
- It also defines each stakeholder's responsibilities according to different phases.
- In a nutshell, LCP improves the quality of the project by proper planning and also reduces the risk exposure.

Status of the LCP

- The status of the LCP is currently at the Draft Foundations Commitment Package version number 2.0. This is the version that will be delivered to the client. The major changes from Exploration phase are inclusion of phase-wise responsibilities of each stakeholder and milestones and artifacts delivered in each phase.



Assumptions

- The duration of the project is 24 weeks, which are 12 weeks in fall 2014 and 12 weeks in spring 2015.
- The project involves 8 personnel resources.
- Team meetings are held each week to discuss on the future tasks of the project.



Overall Strategy

- This project is following NDI-Intensive ICSM process. The milestone, deliverables according to each phase are:

Exploration phase

- **Duration:** 09/14/14- 10/01/14
- **Concept:** The team meets with the client and discuss the requirements. The team figures out the skills needed for this project. It also analyses the current system.
- **Deliverables:** Valuation Commitment Package, Client Interaction Report, Project Reports and Plans, Weekly Effort Report, program model, business plan and results chain.
- **Milestone:** Valuation Commitment Review
- **Strategy:** One Incremental Commitment Cycle



Valuation phase

- **Duration:** 10/01/14- 10/20/14
- **Concept:** The team evaluates the risks and prioritize the requirements with the help of winwin negotiations. After that, the high risk item was chosen for prototyping. Both the approaches were followed – horizontal prototyping and vertical prototyping. The horizontal prototype included basic UI design and the vertical prototype included a simple functional demo of a high risk item, i.e. OCR working on android operating system.
- **Deliverables:** Draft Foundations Commitment Package, Foundations Commitment Package, Initial Prototype, Project Reports and Plans, Weekly Effort Report.
- **Milestone:** Foundations Commitment Review
- **Strategy:** One Incremental Commitment Cycle



Foundations phase

- **Duration:** 10/20/14- 12/08/14
- **Concept:** The team will assess the project status. The changes in requirements will be analyzed, and corresponding adjustments will be made. NDI component will be assessed and development software architecture will be designed. Besides, actual functional prototypes will be built. Meetings will continue. Efforts will be reported. Work on OCR will be done so as to create a functional prototype that could work on iOS as well.
- **Deliverables:** Draft Development Commitment Package, Development Commitment Package, Initial Prototype, Project Reports and Plans, Weekly Effort Report.
- **Milestone:** Development Commitment Review
- **Strategy:** One Incremental Commitment Cycle



Project Deliverables

Exploration Phase

Table 1: Artifacts Deliverables in Exploration Phase

Artifact	Due date	Format	Medium
Client Interaction Report	9/19/2014	.doc, .pdf	Soft copy
Valuation Commitment Package <ul style="list-style-type: none">• Life Cycle Plan (LCP) Early Section• Feasibility Evidence Description (FED) Early Section	09/29/2014	.doc, .pdf	Soft copy
Project Effort	Every Monday	Text	Bugzilla
Project Plan	Every two weeks on Wednesday	.mpp	Soft copy
Progress Report	Every two weeks on Wednesday	.xls	Soft copy
Program model, business model, results chain diagram	09/21/2014	.docx	Soft copy



Valuation Phase

Table 2: Artifact deliverable in Valuation Phase

Artifact	Due date	Format	Medium
Prototype presentation	10/03/2014	.ppt	Soft copy
Draft Foundations Commitment Package <ul style="list-style-type: none">• Operational Concept Description (OCD)• Feasibility Evidence Description (FED)• Life Cycle Plan (LCP)• System and Software Architecture Description (SSAD)• Prototype report (PRO)	10/13/2014	.doc,.pdf	Soft copy
Foundations Commitment Package <ul style="list-style-type: none">• Operational Concept Description (OCD)• Feasibility Evidence Description (FED)• Life Cycle Plan (LCP)• System and Software Architecture Description (SSAD)• Prototype report (PRO)• Quality Management Practice(QMP)• Supporting Information Document(SID)		.doc, .pdf	Soft copy
Project Effort	Every Monday	Text	Bugzilla
Project Plan	Every two weeks on Wednesday	.mpp	Soft copy
Progress Report	Every two weeks on Wednesday	.xls	Soft copy

Foundations Phase



Table 3: Artifacts Deliverables in Foundation Phase

Artifact	Due date	Format	Medium
Drafts Development Commitment Package	12/01/2014	.doc, .pdf	Soft copy
Development Commitment Package	12/08/2014	.doc, .pdf	Soft copy
Project Effort	Every Monday	Text	Bugzilla
Project Plan	Every two weeks on Wednesday	.mpp	Soft copy
Progress Report	Every two weeks on Wednesday	.xls	Soft copy



Development Phase

Table 4: Artifacts Deliverables in Development Phase

Artifact	Due date	Format	Medium
Transition package	TBD	TBD	TBD
Project Effort	Every Monday	Text	Bugzilla
Project Plan	Every two weeks on Wednesday	.mpp	Soft copy
Progress Report	Every two weeks on Wednesday	.xls	Soft copy



RESPONSIBILITIES

3. Responsibilities

3.1 Project-specific responsibilities stakeholder's

The stakeholders only include client, user, maintainer, developer and IIV & V, i.e., the typical stakeholders of CSCI577ab

3.2 Responsibilities by Phase

Table 5: Stakeholder's Responsibilities in each phase

Team Member / Role	Primary / Secondary Responsibility					
	Exploration	Valuation	Foundations	Development-Construction Iteration	Development-Transition Iteration	
Name: Rob Stehlin Role: Client	Primary Responsibility <ul style="list-style-type: none">- Explain scope and primary requirement- Contribute to the win conditions- Clarify the problems from development team	Primary Responsibility <ul style="list-style-type: none">- Assess work artifacts and provide feedback- Identify shared vision, goal, and concepts	Primary Responsibility <ul style="list-style-type: none">- Provide feedback for prototypes	Primary Responsibility <ul style="list-style-type: none">- Test system development modules- Provide feedback of system features	Primary Responsibility <ul style="list-style-type: none">- Accept the training- Prepare for system transition	
Name: Alisha Parvez Role: Life Cycle Planner, Feasibility Analyst	Primary Responsibility <ul style="list-style-type: none">-Plan project life cycle phases	Primary Responsibility <ul style="list-style-type: none">-Plan project life cycle phases	Primary Responsibility <ul style="list-style-type: none">-Provide detail project plan	Primary Responsibility <ul style="list-style-type: none">-Develop support plan	Primary Responsibility	

	Secondary Responsibility <ul style="list-style-type: none">- List deliverables- Identify skills Secondary Responsibility <p>Check if the requirements are feasible.</p>	Secondary Responsibility <ul style="list-style-type: none">- List deliverables- Identify responsibilities Secondary Responsibility <p>Assess plans to mitigate risks</p>	Secondary Responsibility <ul style="list-style-type: none">-list deliverables-Estimate project effort using COINCOMO-identify development iteration Secondary Responsibility <ul style="list-style-type: none">-Assess and evaluate feasibility of NDI.-Provide feasibility evidence for NDI		Secondary Responsibility <ul style="list-style-type: none">-Develop Transition plan-Deliver final project artifacts
Name: Ekasit Jarussinichai(Alan) Role: Requirements Engineer, Prototyper	Primary Responsibility <ul style="list-style-type: none">- Develop Requirement Definition Secondary Responsibility <ul style="list-style-type: none">- Research for NDI	Primary Responsibility <ul style="list-style-type: none">- Assess and prioritize requirements Secondary Responsibility <ul style="list-style-type: none">- Build horizontal and vertical Prototypes	Primary Responsibility <ul style="list-style-type: none">- Assess NDI, Conduct risk assessment plan	Primary Responsibility <ul style="list-style-type: none">- Build the system	Primary Responsibility <ul style="list-style-type: none">- Deploy and transit the system
Name: Kenneth Anguka Role: Verification and Validation Engineer, Requirements Engineer	Primary Responsibility <ul style="list-style-type: none">-Review the project artifacts-Manage Project Quality Secondary Responsibility <ul style="list-style-type: none">- Develop Requirement Definition	Primary Responsibility <ul style="list-style-type: none">-Review the project artifacts-Manage Project Quality Secondary Responsibility <ul style="list-style-type: none">- Assess and prioritize requirements	Primary Responsibility <ul style="list-style-type: none">- Verify and validate work products Secondary Responsibility <ul style="list-style-type: none">- Build the system	Primary Responsibility <ul style="list-style-type: none">- Verify and validate work products Secondary Responsibility <ul style="list-style-type: none">- Deploy and transit the system	



		Assess and prioritize requirements	Assess NDI, Conduct risk assessment plan		
Name: Kshama Krishnan Role: Prototyper, System and Software Architect	Primary Responsibility Research for NDI Secondary Responsibility Explore current system design	Primary Responsibility Build prototype and analyze NDI components, Secondary Responsibility Define technical architecture	Primary Responsibility Access NDI, conduct risk assessment plan, Secondary Responsibility Create system and software architecture description, Create UML Model	Primary Responsibility Build the system	Primary Responsibility Deploy and transit the system
Name: Le Zhuang(Oliver) Role: Feasibility Analyst, System and Software Architect	Primary Responsibility Identify the system concept, develop vision and usage Secondary Responsibility Analyze current system	Primary Responsibility Specify architectural styles, patterns and frameworks Secondary Responsibility Capture win-win negotiations,	Primary Responsibility Assess system architecture Secondary Responsibility Identify system and software requirements definition	Primary Responsibility Develop System	Primary Responsibility Develop system, fix defects
Name: Shreya Sharma	Primary Responsibility Identify the system concept,	Primary Responsibility Specify architectural	Primary Responsibility	Primary Responsibility	Primary Responsibility

Role: System and Software Architect, Requirements Engineer	develop vision and usage Analyze current system	styles, patterns and frameworks Capture win-win negotiations,	Assess system architecture Identify system and software requirements definition		Develop system, fix defects
Name: Steven Helferich Role: Project Manager, Operational Concept Engineer	Primary Responsibility - Facilitate Client-Team interaction for understanding of operational concept elements - Document team work and progress - Identify system concept and develop vision and usage Secondary Responsibility - Build horizontal prototypes	Primary Responsibility - Assess and prioritize requirements - Facilitate client-team interactions to prioritize requirements Secondary Responsibility - Analyze current system and evaluate requirements	Primary Responsibilities - Conduct risk assessment and address major remaining risks	Primary Responsibilities - Support development team - Document work - Build the system	Primary Responsibility - Deploy and transit system
Name: Xichao Wang(Clark)	Primary Responsibility: Meet with client	Primary Responsibility: Evaluate the	Primary Responsibility: figure out how		



Role: Operational Concept Engineer, Life Cycle Planner	<p>and understand what does current system looks like, including current business workflow, current infrastructure, etc. And establish detail information about requirements from clients about the new system.</p> <p>Secondary Responsibility: evaluate all requirements with an appropriate schedule.</p>	<p>relationship of current system and new system; establish the element relationship of new system and new system business workflow.</p>	<p>components interoperate with each other to provide the desired capabilities.</p> <p>Secondary Responsibility: tailor the OCR for adopting with other components.</p>		
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SKILLS

Table 6: Skills

Team members	Role	Skills
Steven Helferich	Project Manager	Current: Java, HTML5/CSS, Bootstrap, JS/jQuery, Python, <u>Matlab</u> Required: Android, iOS, PHP, MySQL
Kenneth Anguka	IIV&V	Current: C, C++, Java, Embedded and Real Time Systems, Python
Xichao Wang	Operational Concept Engineer	Current: Java, C++, Python, <u>Matlab</u> Required: PHP, <u>HTML</u> , <u>MySQL</u> , JS, Backbone.js, <u>Bootstrap</u>
Alisha Parvez	Life Cycle Planner	Current: Java, C++, C, Python, JS, HTML5, MYSQL Required: Bootstrap, jQuery
Ekasit Jarussinvichai	Requirements Engineer	Current: Java, C++, HTML/CSS, VBA, Oracle, JS Required: PHP, JSON, MySQL, Backbone.js, Bootstrap, Cordova, <u>Winbook</u>
Kshama Krishnan	Prototyper	Current: Java, JS, HTML5/CSS3, Android, jQuery, C, C++
Le Zhuang	Feasibility Analyst	Current: Java, Python, C, HTML/CSS, <u>Matlab</u> Required: Bootstrap, PHP, MySQL, JS, JSON, jQuery, Backbone.js,
Shreya Sharma	Software Architect	Current: Testing: Web and Mobile, HTML5/CSS3, Bootstrap, JS



APPROACH

- **Monitoring and Control**

- The effort spent on the project is being recorded on Bugzilla.
- The number of lines of code is logged on as project report every two weeks.
- Communication with the client is being done through Winbook and emails.
- Commitment review is done before moving into each phase.
- The overall strategy is reported through project plan every two weeks.

- **Closed Loop Feedback Control**

- The team internally communicates through emails and google drive to keep everyone updated. The team also has team meeting every week to discuss about what we did in the previous week and what we are supposed to do next week.



Reviews

- ARB: This is a review that we perform with instructors and TAs to analyze our project progress.
- Team Meeting: Every Monday, the on-campus team has group meeting discussing about the progress and to-dos. The den-student is kept updated through mails and google drive documents.
- Bugzilla: We have maintained Bugzilla to trace our progress



Methods, Tools and Facilities

TOOLS	USAGE	PROVIDER
Bugzilla	Tracks project progress	TA
Winbook	Keeps track of the information resulting from negotiations with client, win conditions and issues raised	TA
Microsoft Visio	Documents OCD workflow	Microsoft
Microsoft Office	Documents editing, sheets, presentations etc...	Microsoft
Visual Paradigm	Captures UML and auto generate SSAD	Visual Paradigm International
COINCOMO	Estimates the software developing cost	USC CSSE
Effort Report	Records the total weekly working hours on the project	USC CSSE
MPP	Makes the project plan	Microsoft
Project Report	Records lines of code	Microsoft
Balsamiq mockups	For prototyping	Balsamiq



Resources

- The following conditions were used to estimate the cost of our system, CashDoctor 3.0 Mobile App.
- This project has no budget for our development efforts, while the software is provided and tools are free.
- The duration of the project is 12 weeks in CSCI577a
- The duration of the project is 12 weeks in CSCI577b.
- There are eight team members.
- There are four modules in this system.
 - Search module
 - Share module
 - Capture module
 - Networking module
-
- Programming language is JavaScript
- The SLOC is estimated by prototyper



COINCOMO ESTIMATE

The screenshot shows the USC COINCOMO 2.0 software interface. The main window displays a table of high-level features with columns for Name, Start, Labor Rate (\$/Month), EAF, Language, NUM Effort DEV, EST Effort DEV, PROD, COST, INST COST, Staff, and Risk. Below this is an 'Estimation' section with tables for Optimistic, Most Likely, and Pessimistic estimates.

X	Name	Start	Labor Rate (\$/Month)	EAF	Language	NUM Effort DEV	EST Effort DEV	PROD	COST	INST COST	Staff	Risk
	search	550	0.0	0.82	Non-specified	1.58	1.38	399.53	0.00	0.00	0.3	2.0
	ahsize	330	0.0	0.82	Non-specified	1.01	0.85	388.63	0.00	0.00	0.1	2.0
	capture	315	0.0	1.33	Non-specified	0.96	1.27	293.21	0.00	0.00	0.2	2.0
	networking	140	0.0	0.96	Non-specified	1.84	1.29	311.48	0.00	0.00	0.2	2.0

Estimated	Effort	Schedule	PROD	COST	INST	Staff	Risk
Optimistic	3.67	5.51	445.34	0.00	0.00	0.7	
Most Likely	4.59	5.91	358.27	0.00	0.00	0.8	0.0
Pessimistic	5.74	6.34	285.02	0.00	0.00	0.9	



Feasibility Evidence Description



PROCESS FEASIBILITY

Criteria	Importance	Project Status
30 % of NDI/NCS features	2	4
Single NDI/NCS	1	1
Unique/ inflexible business process	1	1
Need control over upgrade / maintenance	1	1
Rapid deployment	2	3
Critical on compatibility	1	2
Internet connection independence	1	1
Need high level of services / performance	2	2
Need high security	3	2



PROCESS FEASIBILITY (CONT.)

Criteria	Importance	Project Status
Asynchronous communication	2	2
Be accessed from anywhere	2	3
Critical on mass schedule constraints	1	2
Lack of personnel capability	1	3
Require little upfront costs	1	3
Require low total cost of ownership	1	3
Not-so-powerful local machines	1	2



MAJOR RISKS

Risk	Potential Magnitude	Probability Loss	Risk Exposure
OCR Failure on Mobile Platform	4	10	40
Back-end Incompatibility	7	9	63
Platform Inconsistency	7	8	56
Performance Limitation	6	9	54
Scalability Uncertainty	6	8	48
Personal Time Constraints	7	8	56
Client Time Constraints	6	6	36
Team Cohesion Failure	4	9	36



NDI FEASIBILITY

- Google Map
 - Google, Proprietary, mature,
- bootstrap, jQuery, Backbone.js
 - Open source
- Java OCR
 - Open source community
- Tesseract OCR
 - Google, open source



TESSERATE OCR vs JAVA OCR

NDI attributes	Weight	Java OCR	Tesseract OCR
Functionality	20	16	17.5
Maturity of product	25	13.5	19.25
Flexibility	15	10.25	12
Ease of use	25	18.5	18.25
Inter-component Compatibility	15	11.75	2.25
Total	100	70	69.25



CAPABILITY FEASIBILITY

- CR-1: Acquire Geographic Location
- CR-2: Display Price
- CR-3: OCR
- CR-4: Post Price
- CR-5: Input Price Manually



PERSONNEL COST

Activities	Time Spent (Hours)
Exploration, Valuation and Foundation Phase (12 weeks)	
Client meetings [2 hrs/week * 12 weeks * 1 person]	24
Client Win-win sessions [2 hrs/session * 2 sessions * 1 person]	4
Prototyping Presentation [1 hr * 1 person]	1
Architecture Review Boards [2hrs * 1 person]	2
Subtotal	31



PERSONNEL COST

Activities	Time Spent (Hours)
Exploration, Valuation and Foundation Phase (12 weeks)	31
Development and Operation Phase (12 weeks)	
Client meetings [4 hrs/week * 12 weeks * 1 person]	48
Client training seed users [2 hrs/week * 12 weeks * 1 person]	24
Architecture Review Boards [2 hrs * 1 person]	2
Performing core capabilities drive-through [2 hrs * 1 person]	2
Subtotal	76
Maintenance Period (Annual)	
Promoting the app [2 hrs/week * 52 weeks]	104
Subtotal	104
TOTAL	211



HARDWARE/SOFTWARE COST

Type	Cost(\$/year)
Development Cost	
Test Cell Phones	1200
iOS developer license	99
Operational Cost	
Web hosting	1000
Transition Cost	
Total	2299



REVENUE

- \$600 Billion Health Care in US
- **Userbase Assumption:**

Year	Optimistic	Conservative
2015	50,000	25,000
2016	100,000	50,000
2017	200,000	100,000



REVENUE (CONT)

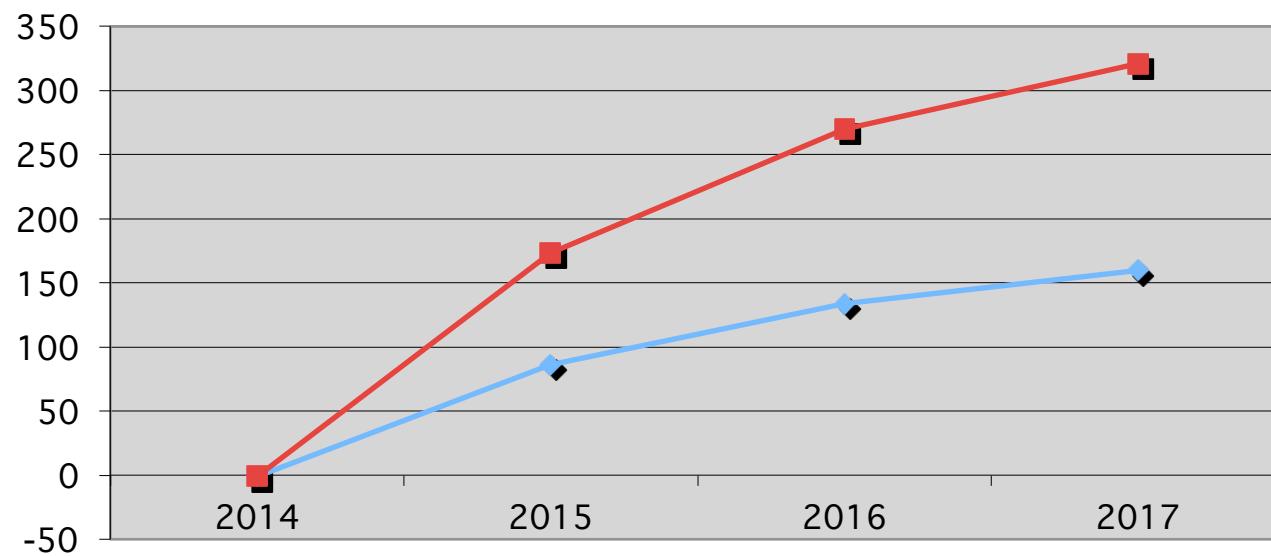
- **Benefit Assumption:** Benefit = \$600 billion * (userbase / population of US) * 5%
- **Revenue Assumption:** Revenue = \$600 billion * (userbase / population of US) * 5% * 15%

Year	Optimistic	Conservative	Optimistic	Conservative
2015	5,000,000	2,500,000	750,000	375,000
2016	10,000,000	5,000,000	1,500,000	750,000
2017	20,000,000	10,000,000	3,000,000	1,500,000



REVENUE (CONT)

Year	Cost	Benefit (con)	Benefit (opt)	ROI (con)	ROI(opt)
2014	2299	0	0	-1	-1
2015	2000	375000	750000	86	173
2016	4000	750000	1500000	134	270
2017	8000	1500000	3000000	160	321





Quality Management Plan



Traceability Matrix

OC-1 Manual Information Search	WC_3084	UC4: Search healthcare information
OC-2 Geo-Location Search	WC_3084 WC_3094	UC4: Search healthcare information
OC-3 Price Comparison	WC_3090	UC12: Customer can compare medical price information
OC-4 User Registration	WC_3086	UC1: Create/Login customer profile UC8: Create/Login Provider profile
OC-5 Price Sharing	WC_3083 WC_3082	UC3: Prices shared by the customers UC9: Provider shares Healthcare Information
OC-6 Provider Rating	WC_3089 WC_3091	UC11: Customer can rate/review a provider
OC-7 Networking	WC_3088	UC5: Create a network UC6: Join an existing network
OC-8 Profile Management	WC_3187	UC2: Update customer Profile
OC-9 Notification Management	WC_3098 WC_3095	UC7: Get notified based on the network subscribed for



Quality Management Strategy

- Project Manager and IIV&V reviews all Bugzilla tasks on a weekly basis.
- Report is emailed to the team.



Defect Identification Reviews

- Documents are reviewed by IIV&V and Project Manager prior to closing a task
- Mostly task tracking, but will become bug tracking by Spring 2015 semester
- Currently:
 - 0 CONFIRMED
 - 4 IN_PROGRESS
 - 16 RESOLVED