CSE3001 - SOFTWARE ENGINEERING

PROJECT REPORT

“CashItOut”

Submitted By

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Software Requirements Specification

CashItOut

1. Introduction

This section gives a scope description and overview of everything included in this SRS document. Also, the purpose for this document is described.

1.1 Purpose

The purpose of this document is to give a detailed description of the requirements for the "CashItOut" software. It will illustrate the purpose and complete declaration for the development of system. It will also explain system constraints, interface and interactions with other external applications. This document is primarily intended to be proposed to a customer for its approval and a reference for developing the primary version of the system for the development team.

1.2 Scope

CashItOut is a software web-application which enables people to instantly sell their old electronic gadgets. The application diagnoses your smart phone with minimal input provided by the user and computes an accurate and reliable selling price. If the user is satisfied with the price offered and is ready to sell, then upon confirmation the old device will be picked up within the next three days from the address specified and cash would be given instantly. This makes the whole experience of online selling simple and secure.

Apart from smartphones, the software also extends for the sales of laptops and cameras as well.

The system administrator can update the application's internal database using the software's admin interface as in when new gadgets come into the market and are likely to be held for resale. This extensive database is what helps end-users to select the specific gadget and model he/she desires to sell.

The software requires an Internet connection to fetch, compute and display results. All system information is maintained in a database, which is located on a web-server. A user-friendly GUI makes the application convenient, fast and easy to use.

CashItOut is a simple solution to a large problem, saving consumers the hassle of selling on online classifieds on in the physical market.

2. Overall description

This section will give an overview of the whole system. The system will be explained in its context to show how the system interacts with other systems and introduce the basic functionality of it. It will also describe what type of stakeholders that will use the system and what functionality is available for each type. At last, the constraints and assumptions for the system will be presented.

2.1 Product perspective

A web portal with a user-friendly GUI will allow users to select the gadget type, model and further specifications such as physical condition, battery or power status and various other parameters, based on which an accurately designed algorithm will be used to compute a selling price for which the user's old gadget can be sold.

The software will need to communicate with an internal database to deliver search results to the user and to later store the product specifics for computing the selling price.

Since this is a data-centric product it will need somewhere to store the data. For that, a database will be used. Both the user and the administrator will communicate with the database, however in slightly different ways. The user will indirectly use the database by computing a market reasonable selling price for a gadget he wishes to sell which exists in the system database while the administrator will only add and modify data. All of the database communication will go over the Internet.

2.2 Product functions

With the software application, the users will be able to search for the gadget and model they intend to sell. There are several selling price computation criteria, all of which will be given by minimal input from the user.

If the gadget and its specified model is found then a menu based interface will allow the user to select the various parameters for the system to store and use for calculation of the selling price. The computed result will be displayed as the offer price and if accepted by the user then will proceed to a page for pickup confirmation with personal details and selection of preferred date and place for pickup.

The web portal will provide functionality to manage the system and also provide information about the system, for example show when there is a new update.

2.3 User characteristics

There are three types of users that interact with the system: users of the software application who intend to sell, administrator and the pickup person. Each of these three types of users has different use of the system so each of them have their own requirements.

The software application users have access to all the gadget catalogs and the computation capabilities to get projected selling prices of various products. This means that the user has the ability to search for gadgets and choose a product with its specific model and other technical details, such as memory or processor size for example. In order for the users to get reliable diagnoses results there are multiple criteria the users must specify as accurately as possible.

The administrator will make use of the web portal to access and maintain the database and keep it up to date. There they will manage the information about the various products, for example a description of the gadget, current market price, technical details and features. They are also managing the overall system so there is no incorrect information within it.

The pickup personnel use the application to get information about scheduled pickups. Based on the date, time and place of pickup a designated person is notified for each product to be picked up from the user. Along with the pickup details the pickup person also gets the product information input by the user about its physical conditions for example so that the input parameters can be crosschecked before handing over the product. If all claimed criteria seem to be legit on the time of pickup then instant cash is given to the user.

2.4 Constraints

The range of products in the market is very vast so it can be quite a tedious task to keep the database updated with every single gadget available out there. The market prices also keep changing so such modifications could make system maintenance a crucial factor to take care of. The application would also be constrained by the capacity of the database

Internet connection is also a constraint for the application. Since the application fetches data from the database over the Internet, it is crucial that there is an Internet connection for the application to function.

3. Specific requirements

This section contains all of the functional and non-functional requirements of the system. It gives a more detailed description of the system and all its features.

3.1 External interface Requirements

This section provides a detailed description of all inputs into and outputs from the system. It also gives a description of the hardware, software and communication interfaces.

3.1.1 User interfaces

A first-time user of the software application should see the log-in page when he/she opens the application. If the user has not registered, he/she should be able to do that on the log-in page.

If the user is not a first-time user, he/she should be able to see the search page directly when the application is opened. Here the user chooses the type of search he/she wants to conduct.

Every user should have a profile page where they can edit their e-mail address, phone number and password.

When a user searches by device, a list or thumbnail view would be default. The sorting header allows the user to sort the results according to device, brand name, model and specific features and details. Each result item includes information about the gadgets, the current market price and a follow button to a menu based interface to input other criteria and parameters for the basis of gadget diagnosis.

The pickup personnel and administrators interact with the system through a web-portal. A pickup person should be able to view his/her scheduled pickups and the corresponding product information. An administrator should also be able to log in to the web-portal where he/she can administer the system by for instance editing gadget information.

3.1.2 Hardware interfaces

The software application has no designated hardware, it does not have any direct hardware interfaces. The hardware connection to the database server is managed by the underlying operating system on the web server.

3.1.3 Software interfaces

The communication between the database and the web portal consists of operation concerning reading, modifying and storing the data depending on the interface through which data is accessed.

3.1.4 Communications interfaces

The communication between the different parts of the system is important since they depend on each other. However, in what way the communication is achieved is not important for the system and is therefore handled by the underlying operating systems for the web portal.

3.2 Functional requirements

This section includes the requirements that specify all the fundamental actions of the software system.

3.2.1 User Class 1 - The User

3.2.1.1 Functional requirement 1.1

ID: FR1

TITLE: User registration

DESC: Given that a user has to make use of the software application, then the user should be able to register through the application. The user must provide user-name, password and e-mail address. The user can choose to provide a regularly used phone number.

RAT: In order for a user to register on the application.

DEP: None

3.2.1.2 Functional requirement 1.2

ID: FR2

TITLE: User log-in

DESC: Given that a user has registered, then the user should be able to log in to the application. The log-in information will be stored on the application and the user will be given the appropriate interface accordingly.

RAT: In order for a user to login to the application.

DEP: FR1

3.2.1.3 Functional requirement 1.3

ID: FR3

TITLE: Retrieve password

DESC: Given that a user has registered, then the user should be able to retrieve his/her password by e- mail.

RAT: In order for a user to retrieve his/her password.

DEP: FR1

3.2.1.4 Functional requirement 1.4

ID: FR4

TITLE: Search

DESC: Given that a user is logged in to the application, then the first page that is shown should be the search page. The user should be able to search for a gadget type, according to several search options. The search options are gadget type, brand, model name and number, and technical specifications and features based on the gadget chosen. There should also be a free-text search option.

RAT: In order for a user to search for a gadget.

DEP: FR2

3.2.1.5 Functional requirement 1.5

ID: FR5

TITLE: Search result in a list view

DESC: Search results can be viewed in a list. Each element in the list represents a specific gadget. Each element should include the gadget type, brand, model, current market price and other technical details.

There maximum number of results displayed is 20 per screen and if the result contains more gadgets than what can be displayed on the screen at one time, the user should be able to scroll through them.

The list view should include a header with different selectable sorting options and also include a button that, when selected, should display different filtering options in a filtering menu.

RAT: The way results should be displayed in a list.

DEP: FR4

3.2.1.6 Functional requirement 1.6

ID: FR6

TITLE: Search by gadget type

DESC: A user should be able to choose from the range of gadgets listed. The result is displayed in a list view by default.

RAT: In order for a user to search by gadget type.

DEP: FR5

3.2.1.7 Functional requirement 1.7

ID: FR7

TITLE: Search by brand name

DESC: A user should be able to input or select a brand of the gadget he wishes to sell.

RAT: In order for a user to search by brand.

DEP: FR5

3.2.1.8 Functional requirement 1.8

ID: FR8

TITLE: Parameter check

DESC: Get a basic analysis of the condition of the product to be sold with a number of predefined queries

RAT: In order for a user to assess their device

DEP: FR6,FR7

3.2.1.9 Functional requirement 1.9

ID: FR9

TITLE: Multiplier assignment

DESC: Based upon the queries answered by the customer, different multipliers are assigned to the parameters.

RAT: In order to compute the selling price

DEP: FR8

3.2.1.10 Functional requirement 1.10

ID: FR10

TITLE: Total cost estimation

DESC: The multipliers assigned are used to determine a percentage of amount that is to be deducted from the market price of the device . The deduction of price is done and the price at which the customers can sell their device is determined.

RAT: In order to compute the final selling price .

DEP: FR9

3.2.2 Admin class-2 - The Admin

3.2.2.1 Functional requirement 2.1

ID: FR1

TITLE: Admin login

DESC: The admin of the system can access their capabilities in this module.

RAT: In order to login as an admin

DEP: None

3.2.2.2 Functional requirement 2.2

ID: FR2

TITLE: Manipulate accounts

DESC: The addition and deletion of users, changing of user details are down here .

RAT: In order to manipulate the accounts .

DEP: FR1

3.2.2.3 Functional requirement 2.3

ID: FR3

TITLE: Manipulate database

DESC: The addition deletion and editing or data in the database .

RAT: In order to manipulate the database.

DEP: FR1

3.2.3 Pick up Person-3- The Pick up Person

3.2.3.1 Functional requirement 3.1

ID: FR1

TITLE: Login as the Pick up Person

DESC: Allows access to the features that are required by the Pick up Person.

RAT: In order to login as the Pick up Person.

DEP: NONE

3.2.3.2 Functional requirement 3.2

ID: FR2

TITLE: Pick up Person

DESC: Checks the integrity of the queries entered by the user by giving a set of questions to the auditor who is physically examining the device.

RAT: In order to check the integrity of the details described by the customer

DEP: FR1,FR8(from user class).

3.3 Non-Functional requirements

3.3.1 Performance requirements

ID: NF1

TITLE: Customer Satisfaction

DESC: To increase the customer satisfaction and overall usage experience.

RAT: In order for the customer to enjoy the experience and be able to sell easily

DEP: none

ID: NF2

TITLE: Expand Product Offering

DESC: To increase the range of products that can be sold by the customer

RAT: In order for the customer to be able to sell a wide variety of electronics

DEP: none

ID: NF3

TITLE: Easy Selling

DESC: To enable the user to sell products easily

RAT: In order for the customer to enjoy the experience and be able to sell easily without much hassle

DEP: none

ID: NF4

TITLE: Security

DESC: To increase the user account security

RAT: User account is password protected to protect personal information

DEP: none

ID: NF5

TITLE: 2FA (Two-Factor Authentication)

DESC: For account authenticity

RAT: Makes sure the created accounts are legitimate and no fake or spam accounts are created.

DEP: none

ID: NF6

TITLE: GUI

DESC: GUI included to improve user interface

RAT: In order for the customer to enjoy the experience and be able to sell easily without much hassle

DEP: none

ID: NF7

TITLE: Well Defined Calculations

DESC: For stable and authentic calculation of resale value

RAT: Accurate calculations for the product being sold by the customer

DEP: none

3.3.2 Software Requirements

ID: NF8

PROGRAMMING LANGUAGE: Python3

DATABASE: SQLLite, MySQL using Python

UI: Python GUI (Using Tkinter and Easy GUI), MIT App Inventor

3.3.3 Reliability

ID: NF9

TITLE: Reliability

DESC: Highly Reliable to use

RAT: Uses well defined algorithms to calculate prices

DEP: none

3.3.4 Portability

ID: NF10

TITLE: Portability

DESC: The application should run on any platform

RAT: The adaptable platform for the application to run on

DEP: none

3.3.5 Maintainability

ID: NF11

TITLE: Application Extendibility

DESC: The application should be easy to extend. The code should be written in such a way that it favors implementation of new functions

RAT: In order for the future functions to be implemented easily to the application

DEP: none

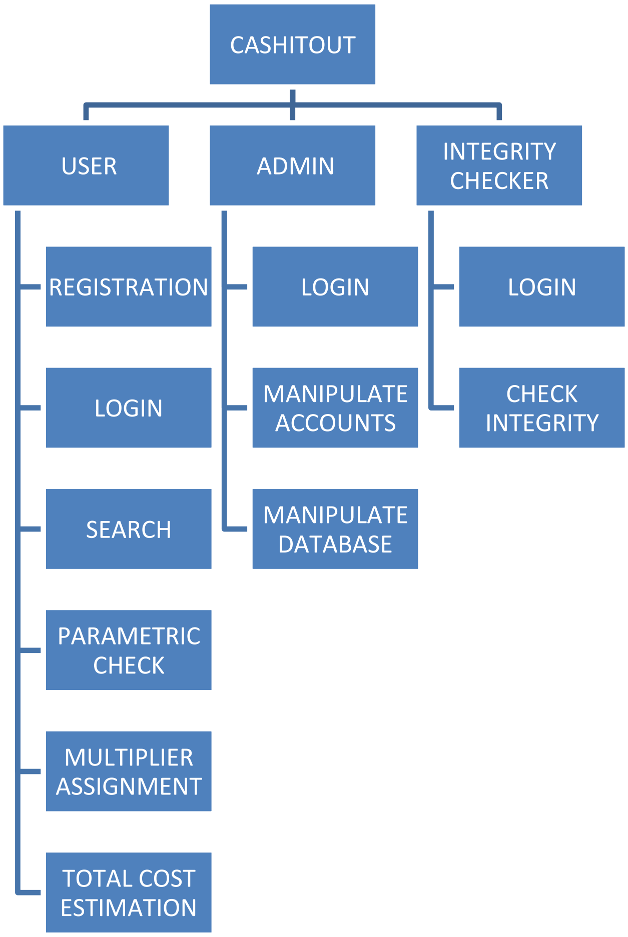
ID: NF12

TITLE: Application Testability

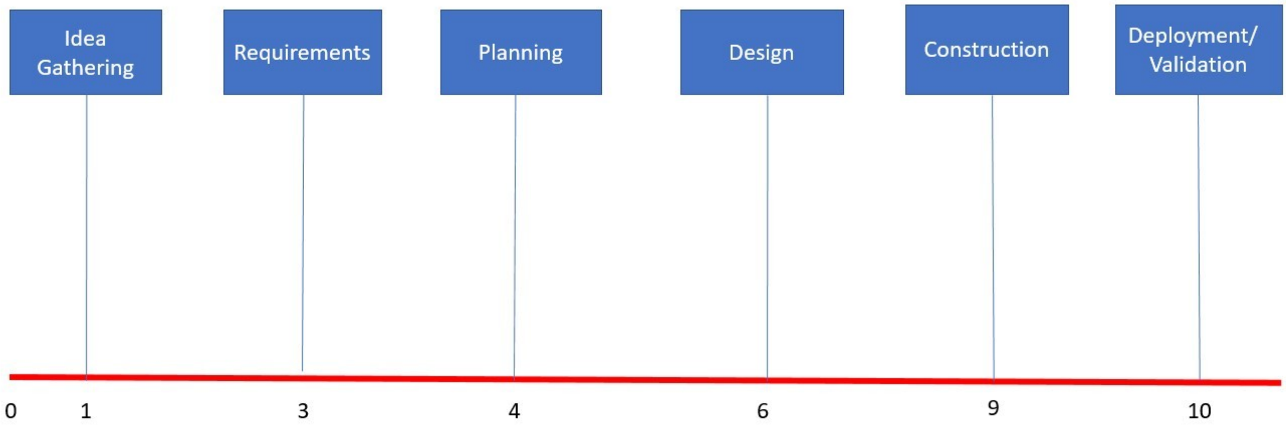
DESC: Test environments should be built to allow testing of the application

RAT: In order to test the application

DEP: none


CASHITOUT
USER
ADMIN
INTEGRITY CHECKER
REGISTRATION
LOGIN
SEARCH
PARAMETRIC CHECK
MULTIPLIER ASSIGNMENT
TOTAL COST ESTIMATION
LOGIN
MANIPULATE ACCOUNTS
MANIPULATE DATABASE
LOGIN
CHECK INTEGRITY

Timeline (in Weeks)



Idea Gathering – 1

Requirements – 3

Planning – 4

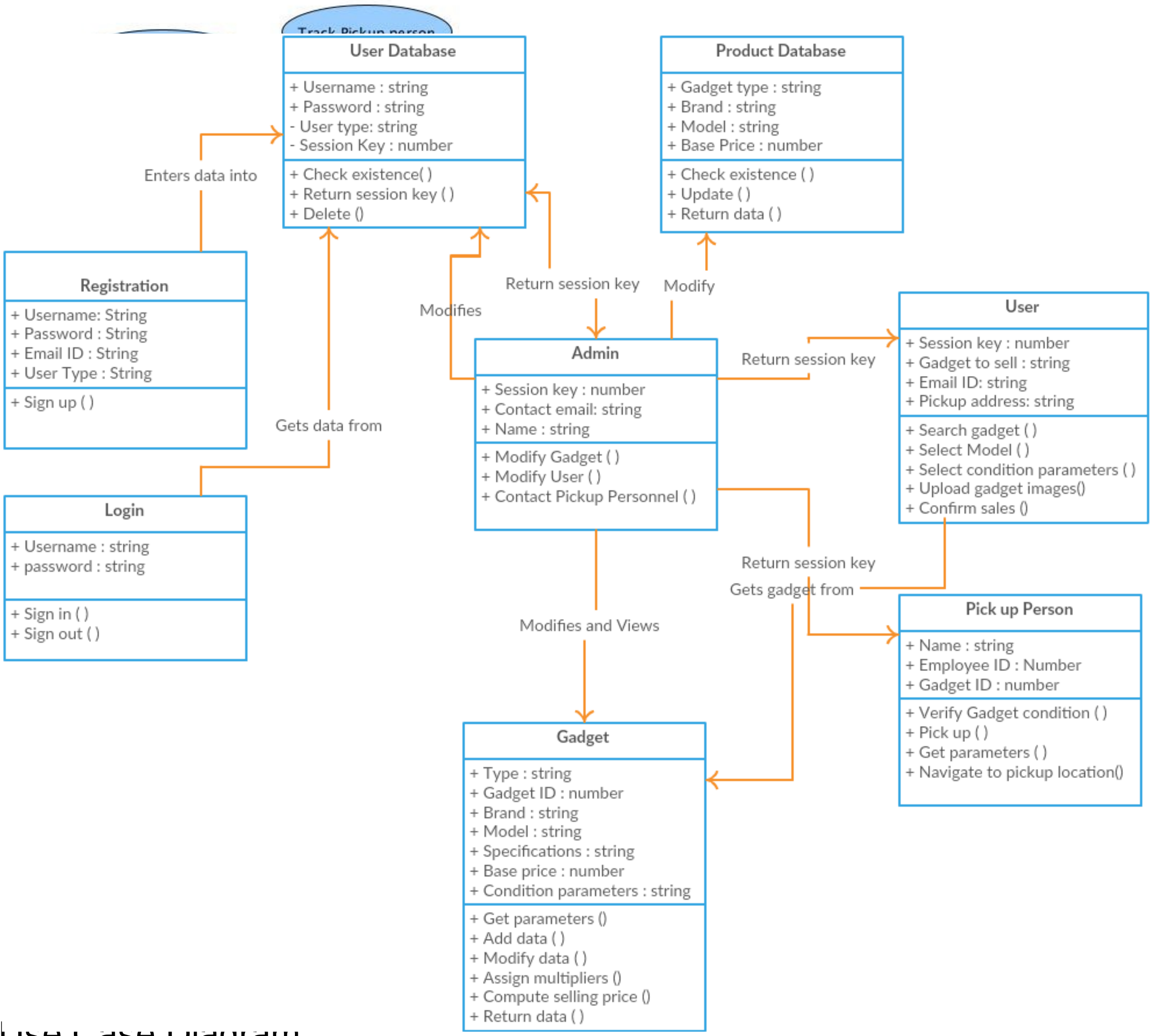
Design – 6

Construction – 9

Deployment/ Validation – 10

0

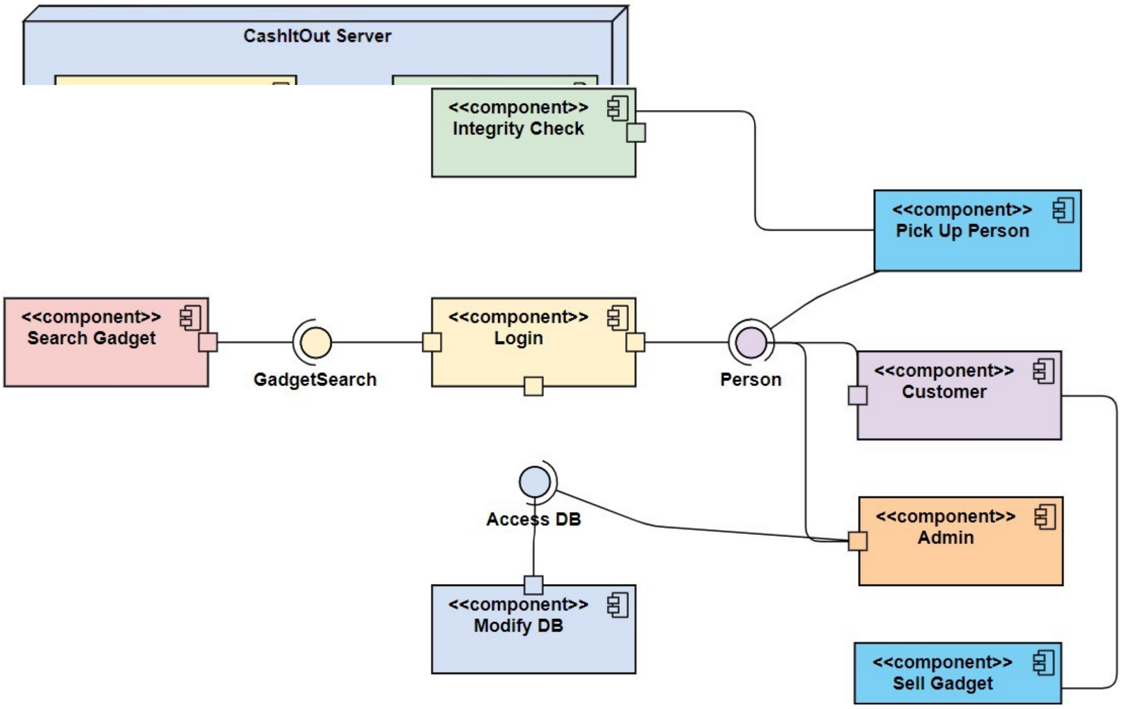
UML Diagrams



1) Use Case Diagram

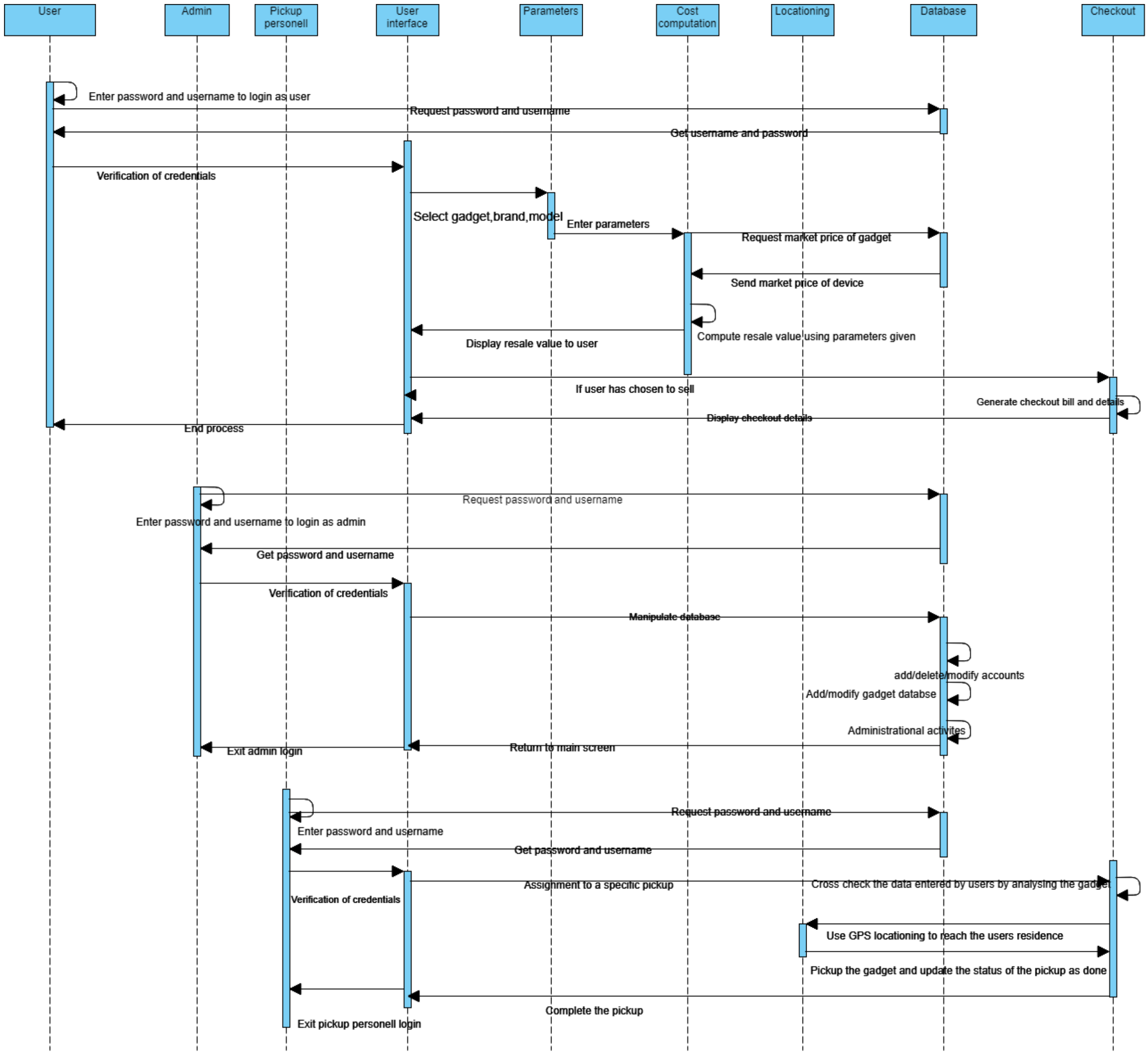
2) Deployment Diagram

3) Class Diagram

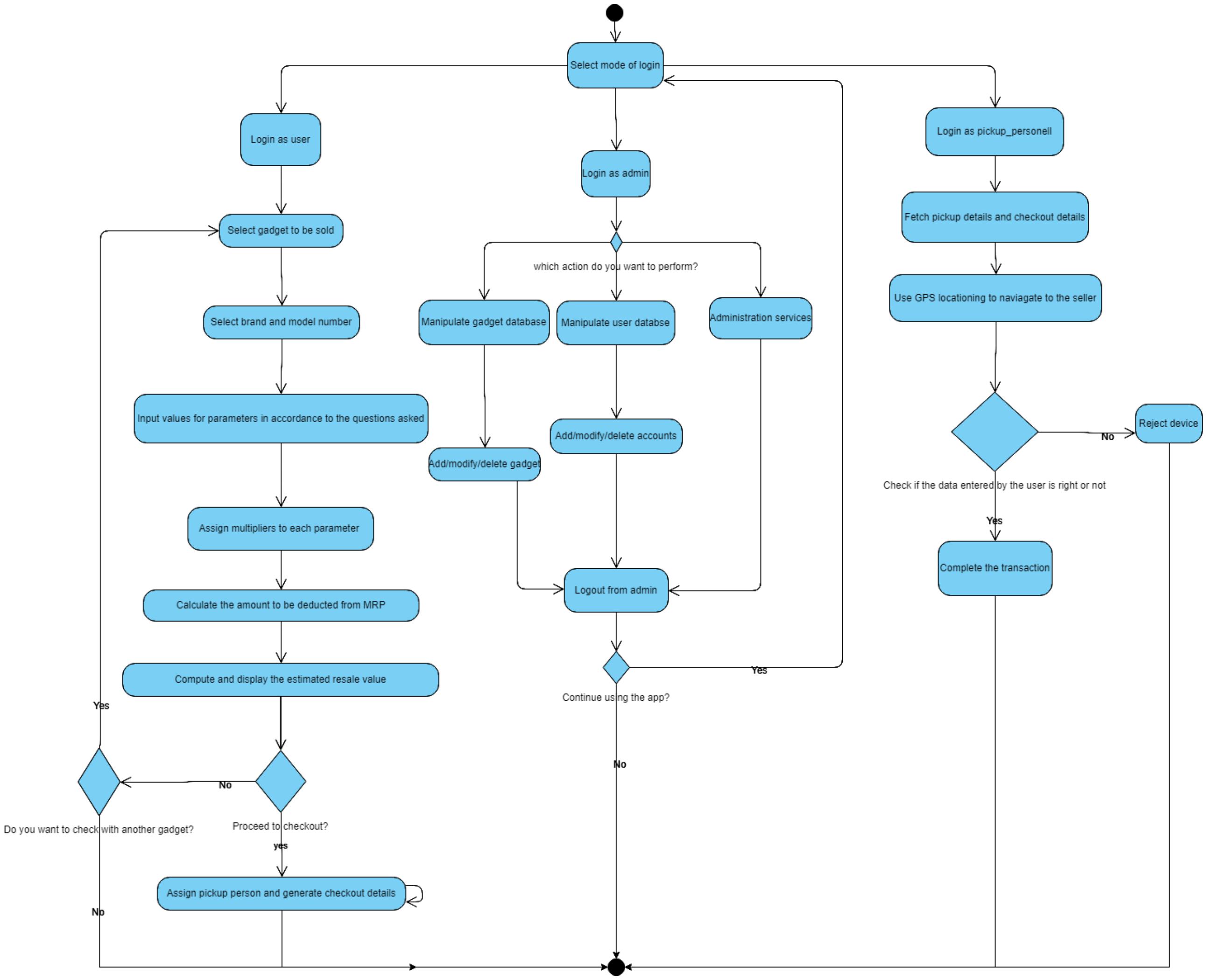


4)

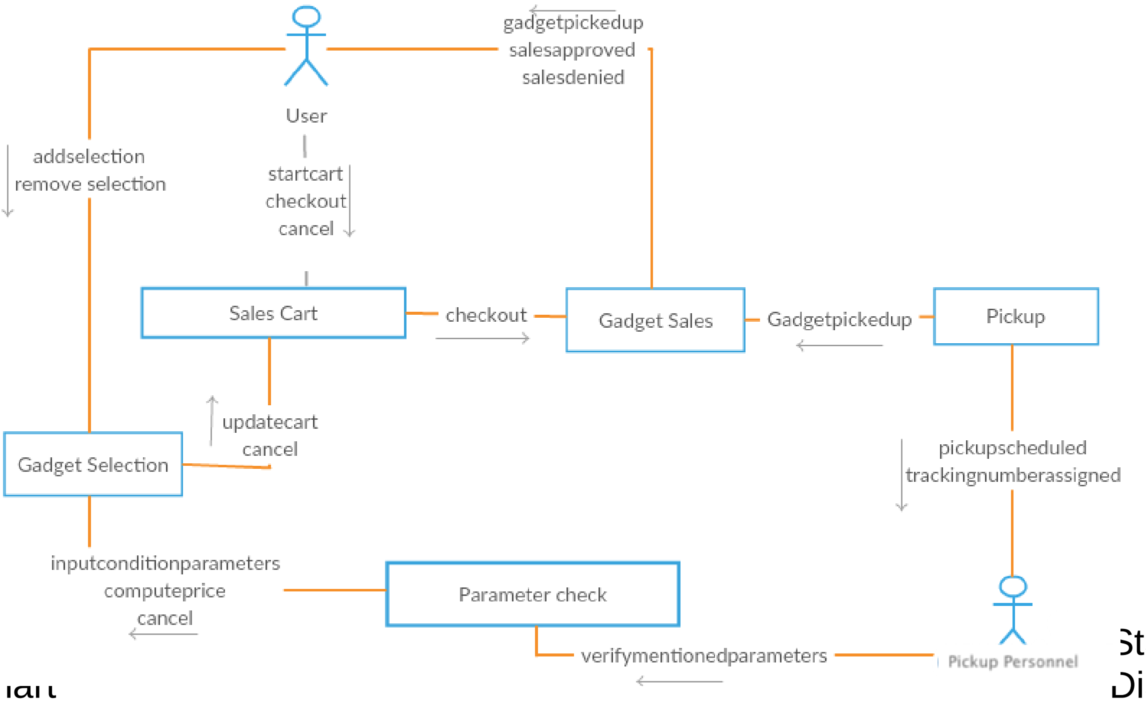
5)


User
Admin
Pickup personell
User interface
Parameters
Cost computation
Locationing
Database
Checkout
Enter password and username to login as user
Request password and username
Get username and password
Verification of credentials
Select gadget,brand,model
Enter parameters
Request market price of gadget
Send market price of device
Compute resale value using parameters given
Display resale value to user
If user has chosen to sell
Generate checkout bill and details
Display checkout details
End process
Request password and username
Enter password and username to login as admin
Get password and username
Verification of credentials
Manipulate database
add/delete/modify accounts
Add/modify gadget databse
Administrational activites
Return to main screen
Exit admin login
Request password and username
Enter password and username
Get password and username
Assignment to a specific pickup
Cross check the data entered by users by analysing the gadget
Verification of credentials
Use GPS locationing to reach the users residence
Pickup the gadget and update the status of the pickup as done
Complete the pickup
Exit pickup personell login

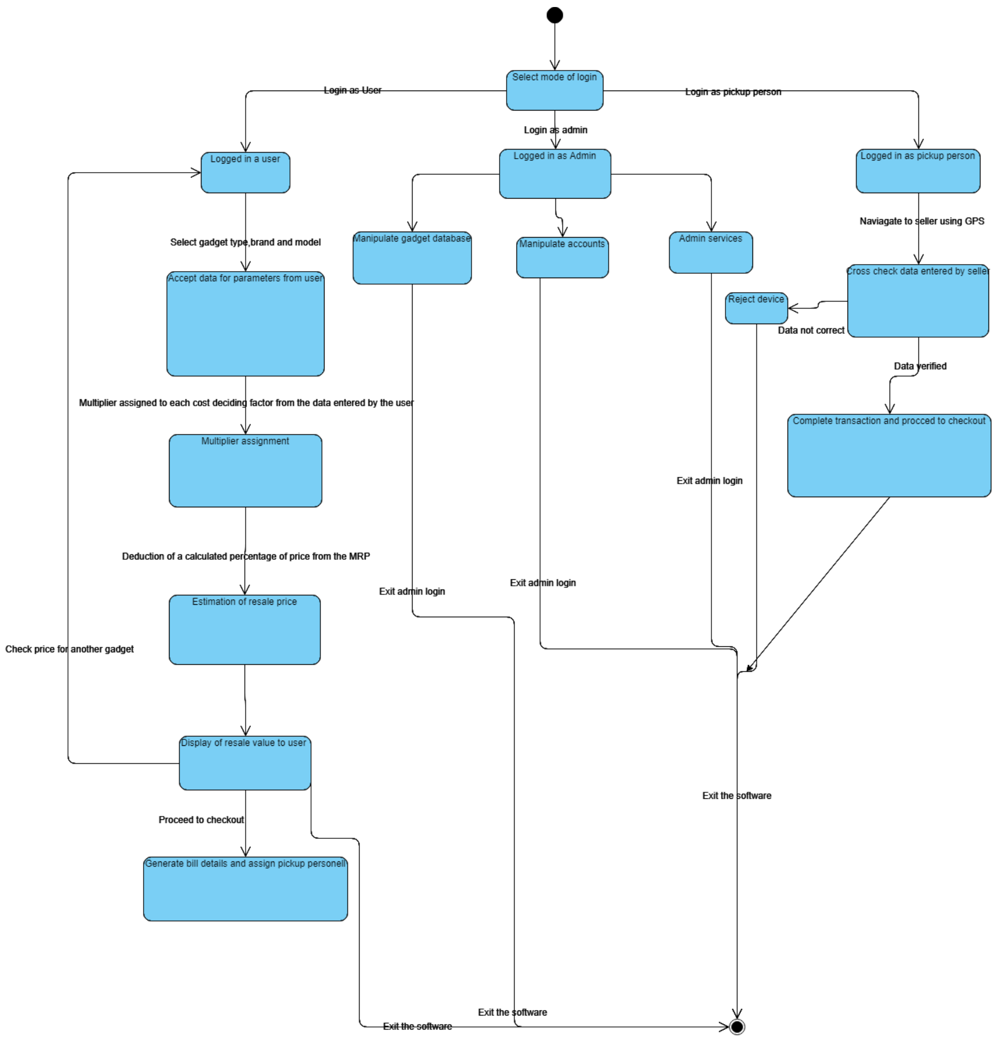
6) Activity Diagram


Select mode of login
Login as user
Login as admin
Login as pickup_personell
Select gadget to be sold
Select brand and model number
Input values for parameters in accordance to the questions asked
Assign multipliers to each parameter
Calculate the amount to be deducted from MRP
Compute and display the estimated resale value
Yes
No
Do you want to check with another gadget?
Proceed to checkout?
yes
Assign pickup person and generate checkout details
No
which action do you want to perform?
Manipulate gadget database
Manipulate user databse
Administration services
Add/modify/delete accounts
Add/modify/delete gadget
Logout from admin
Yes
Continue using the app?
No
Fetch pickup details and checkout details
Use GPS locationing to naviagate to the seller
No
Reject device
Check if the data entered by the user is right or not
Yes
Complete the transaction

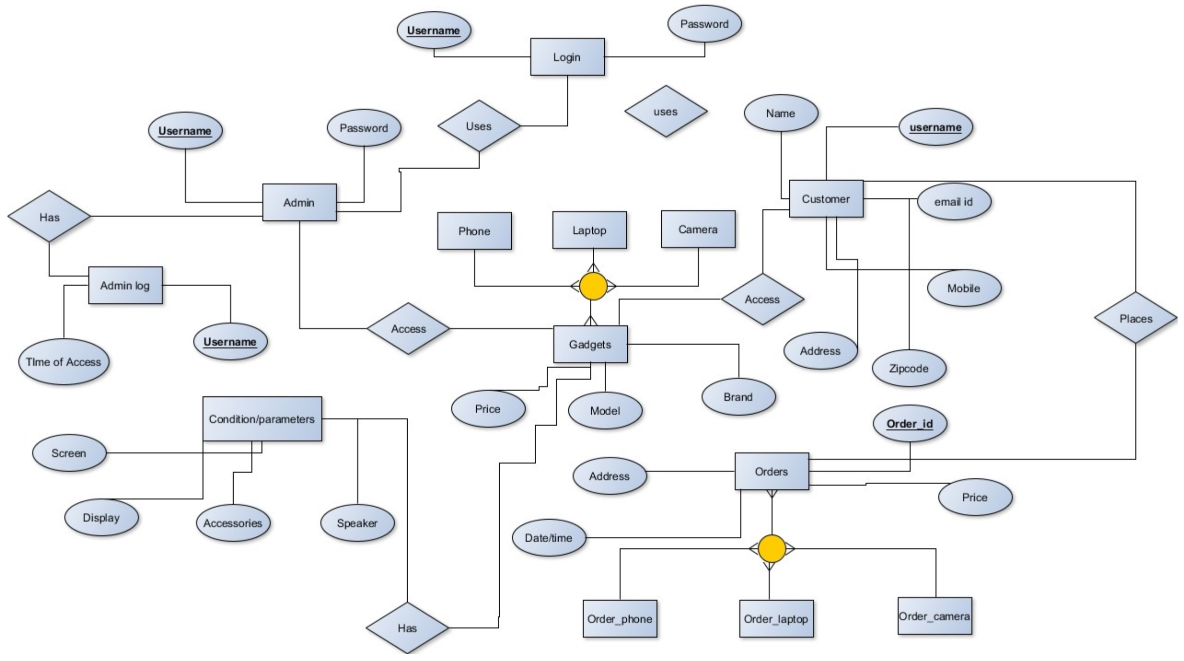
7) Collaboration Diagram



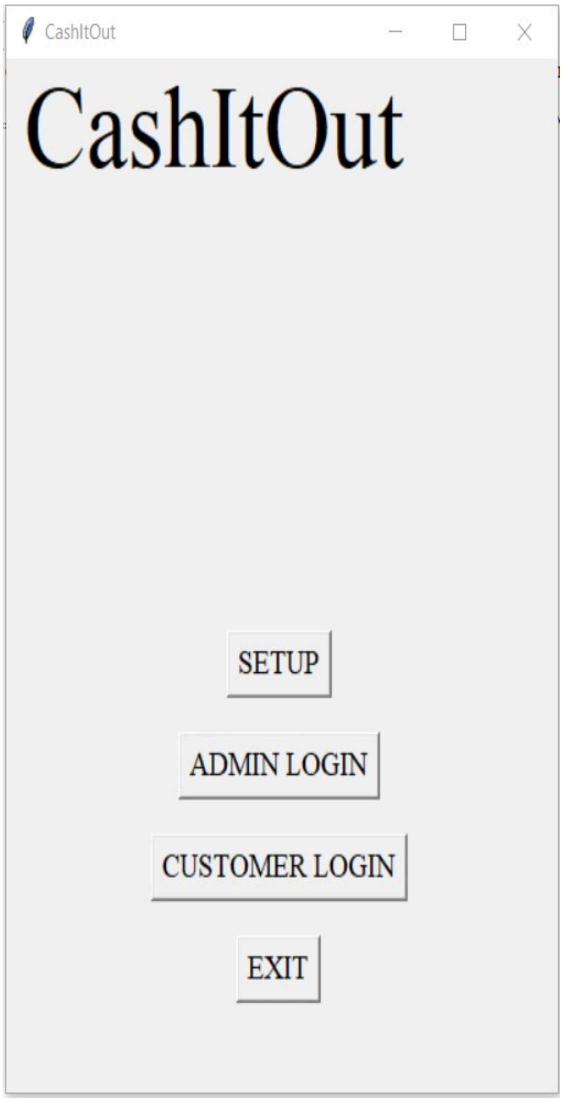
8) State-chart Diagram


Select mode of login
Login as User
Login as pickup person
Login as admin
Logged in a user
Logged in as Admin
Logged in as pickup person
Select gadget type,brand and model
Manipulate gadget database
Manipulate accounts
Admin services
Naviagate to seller using GPS
Accept data for parameters from user
Cross check data entered by seller
Reject device
Data not correct
Data verified
Multiplier assigned to each cost deciding factor from the data entered by the user
Multiplier assignment
Complete transaction and procced to checkout
Exit admin login
Deduction of a calculated percentage of price from the MRP
Exit admin login
Exit admin login
Estimation of resale price
Check price for another gadget
Display of resale value to user
Exit the software
Proceed to checkout
Generate bill details and assign pickup personell
Exit the software
Exit the software

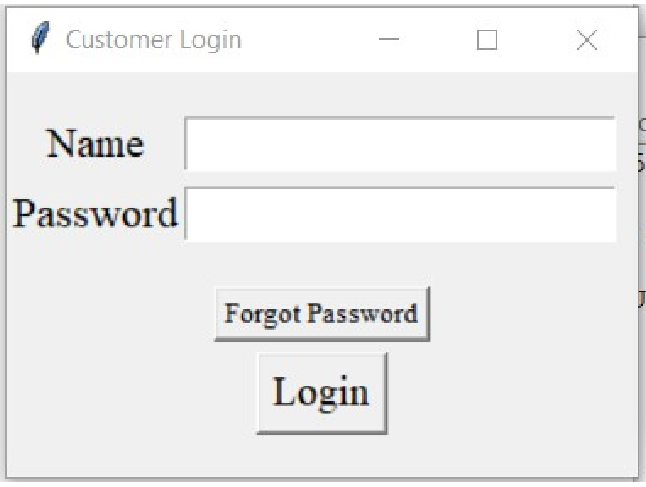
9) ER Diagram

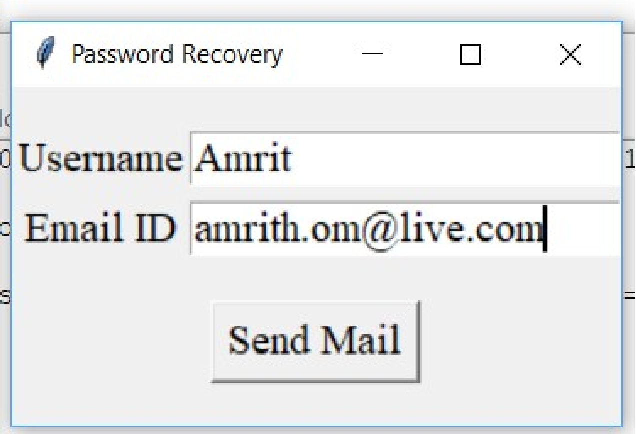

Username
Login
Password
Username
Password
Uses
uses
Name
username
Admin
Customer
email id
Has
Phone
Laptop
Camera
Admin log
Mobile
Access
Places
Access
Gadgets
Address
Time of Access
Username
Zipcode
Brand
Price
Model
Condition/parameters
Order_id
Screen
Orders
Address
Price
Display
Accessories
Speaker
Date/time
Has
Order_phone
Order_laptop
Order_camera

Screenshots



Customer Login:

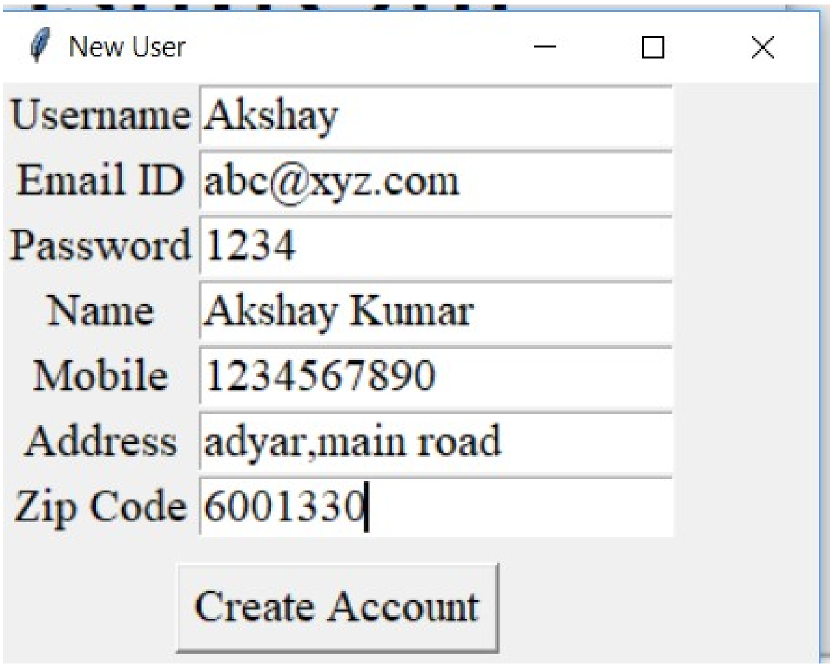




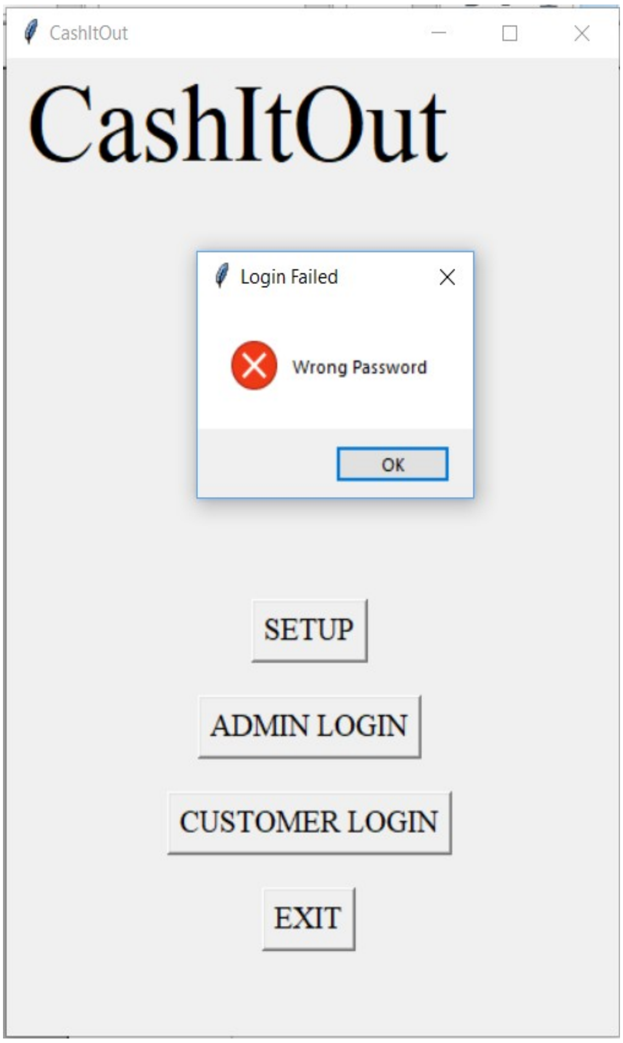
Username Amrit

Email ID amrith.om@live.com

User Registration:


New User

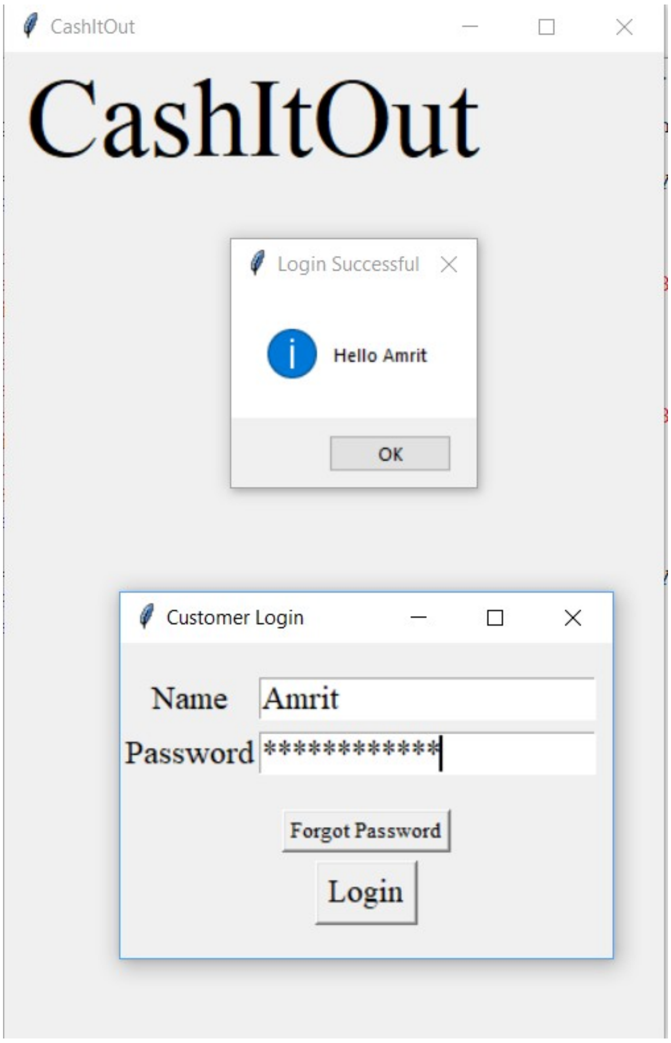
Username Akshay
Email ID abc@xyz.com
Password 1234
Name Akshay Kumar
Mobile 1234567890
Address adyar,main road
Zip Code 6001330


CashItOut

CashItOut

Login Failed

Wrong Password


CashItOut

CashItOut

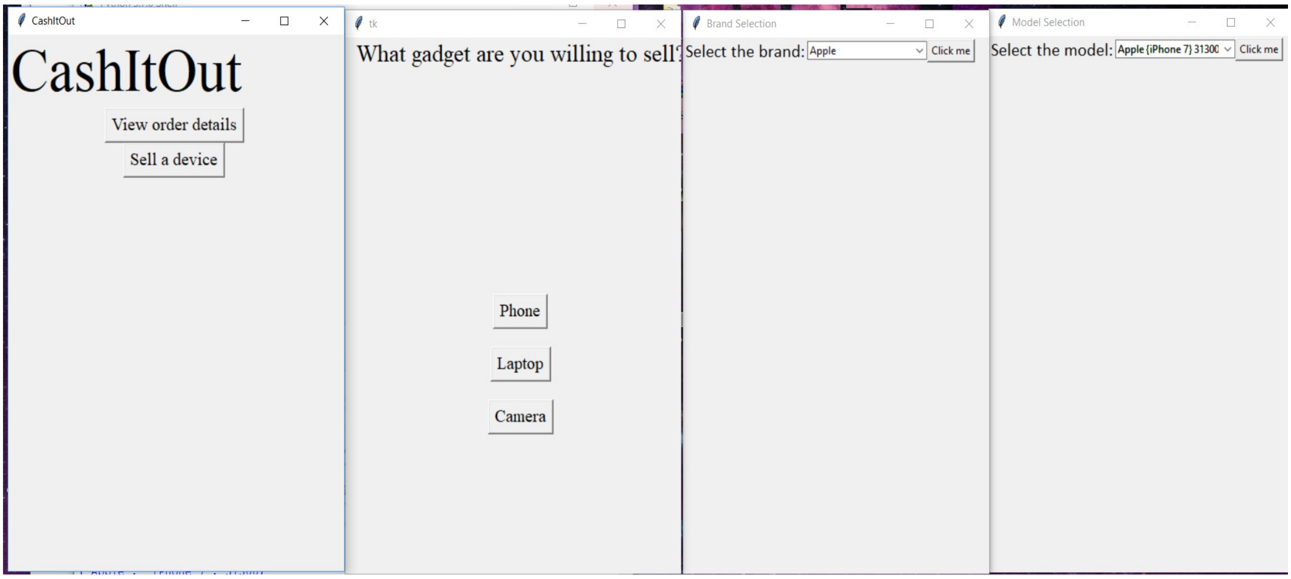
Login Successful

Hello Amrit

Customer Login

Name Amrit
Password ***********

Inputs from user:

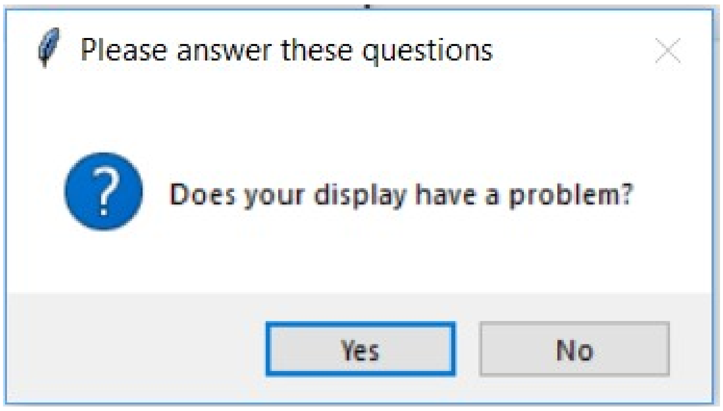


CashItOut

What gadget are you willing to sell?

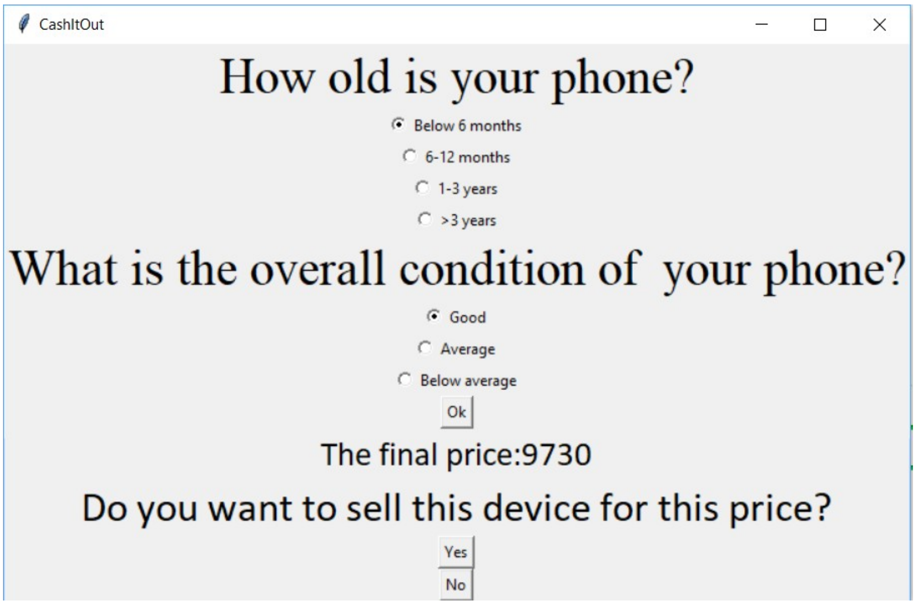
Select the brand: Apple

Select the model: Apple {iPhone 7} 31300



Please answer these questions

Does your display have a problem?



How old is your phone?

● Below 6 months

○ 6-12 months

○ 1-3 years

○ >3 years

What is the overall condition of your phone?

● Good

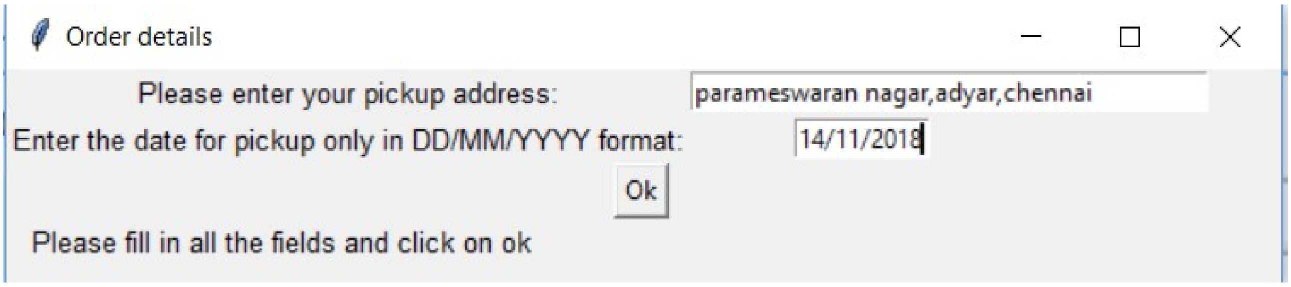
○ Average

○ Below average

The final price:9730

Do you want to sell this device for this price?

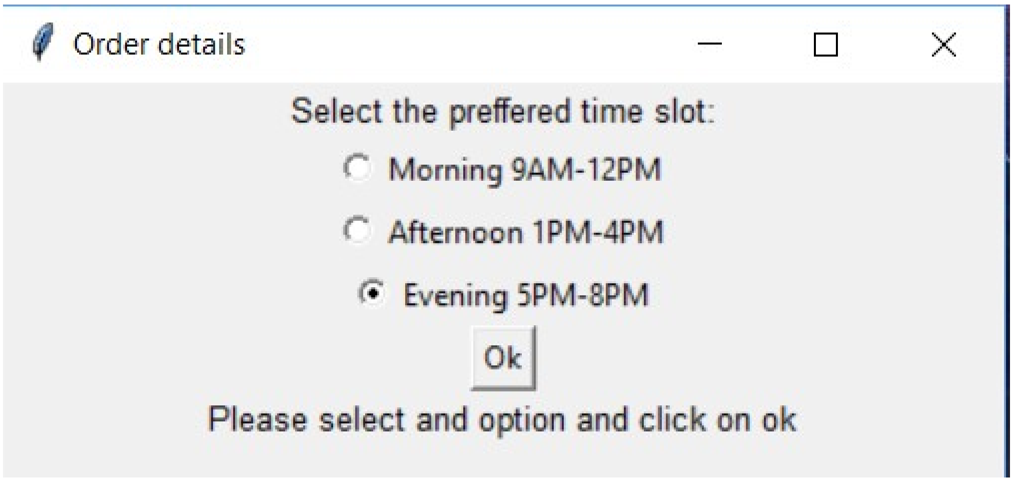
Upon order confirmation:



Please enter your pickup address: parameswaran nagar,adyar,chennai

Enter the date for pickup only in DD/MM/YYYY format: 14/11/2018

Please fill in all the fields and click on ok



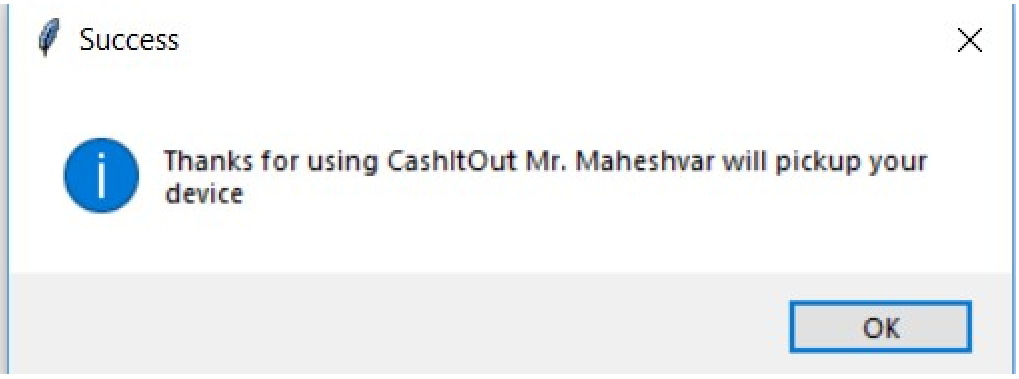
Select the preffered time slot:

○ Morning 9AM-12PM

○ Afternoon 1PM-4PM

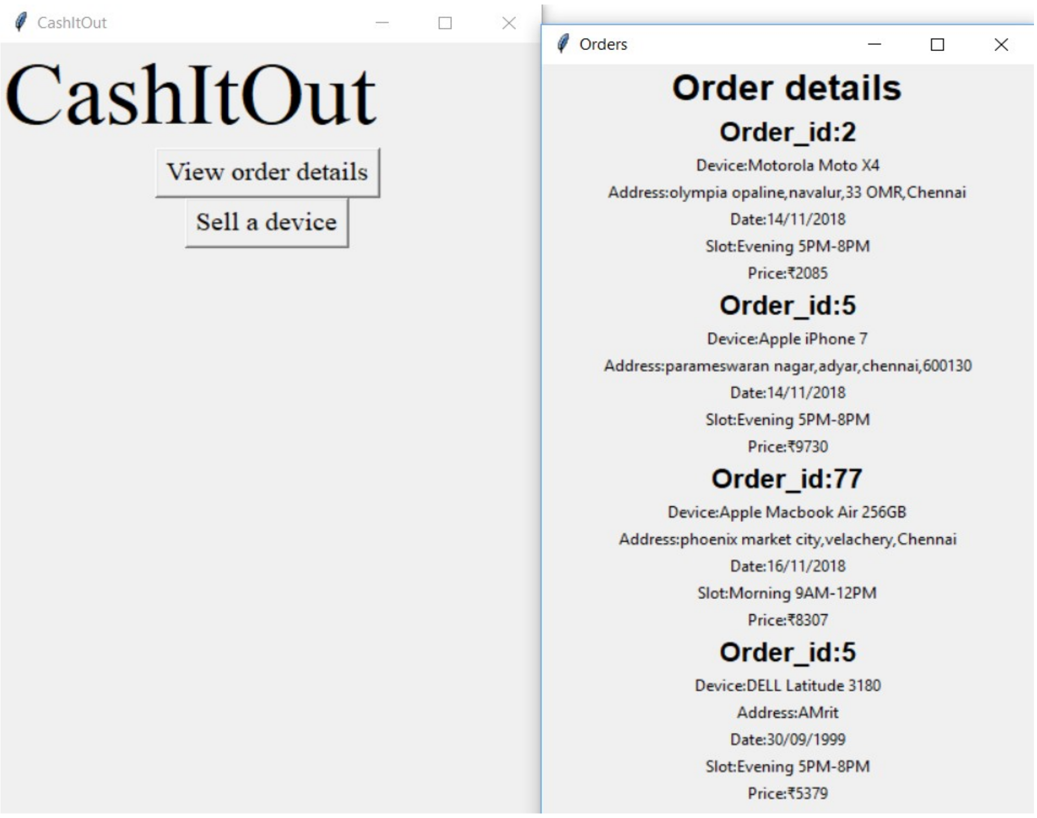
● Evening 5PM-8PM

Please select and option and click on ok



Thanks for using CashItOut Mr. Maheshvar will pickup your device

View Order details:



Order details

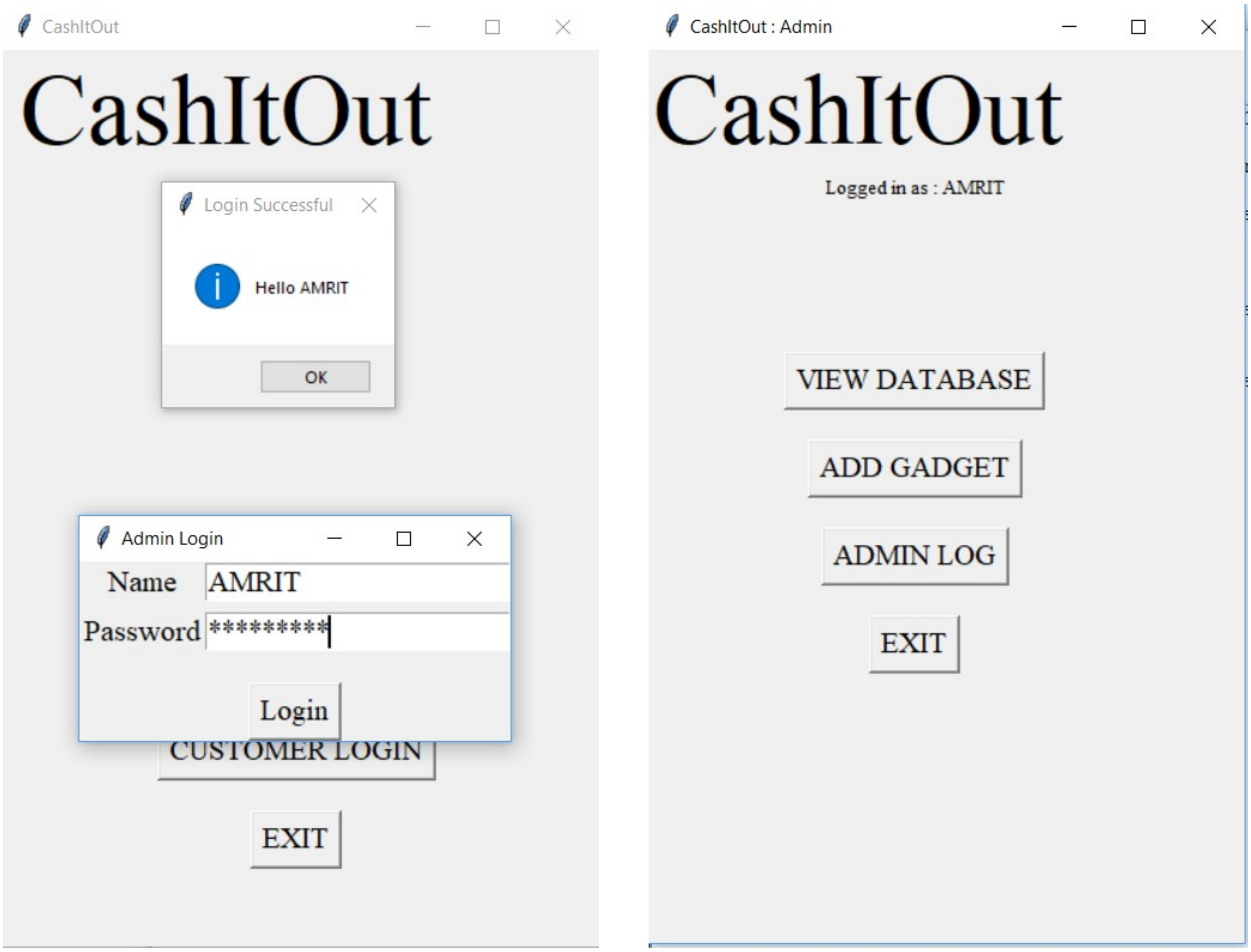
Order_id:2
Device:Motorola Moto X4
Address:olympia opaline,navalur,33 OMR,Chennai
Date:14/11/2018
Slot:Evening 5PM-8PM
Price:₹2085

Order_id:5
Device:Apple iPhone 7
Address:parameswaran nagar,adyar,chennai,600130
Date:14/11/2018
Slot:Evening 5PM-8PM
Price:₹9730

Order_id:77
Device:Apple Macbook Air 256GB
Address:phoenix market city,velachery,Chennai
Date:16/11/2018
Slot:Morning 9AM-12PM
Price:₹8307

Order_id:5
Device:DELL Latitude 3180
Address:AMrit
Date:30/09/1999
Slot:Evening 5PM-8PM
Price:₹5379

Admin Login:

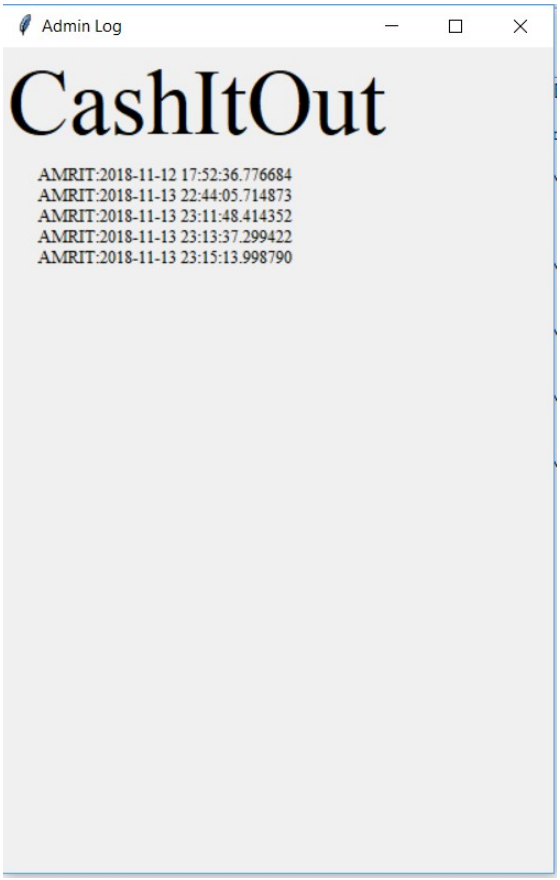


Hello AMRIT

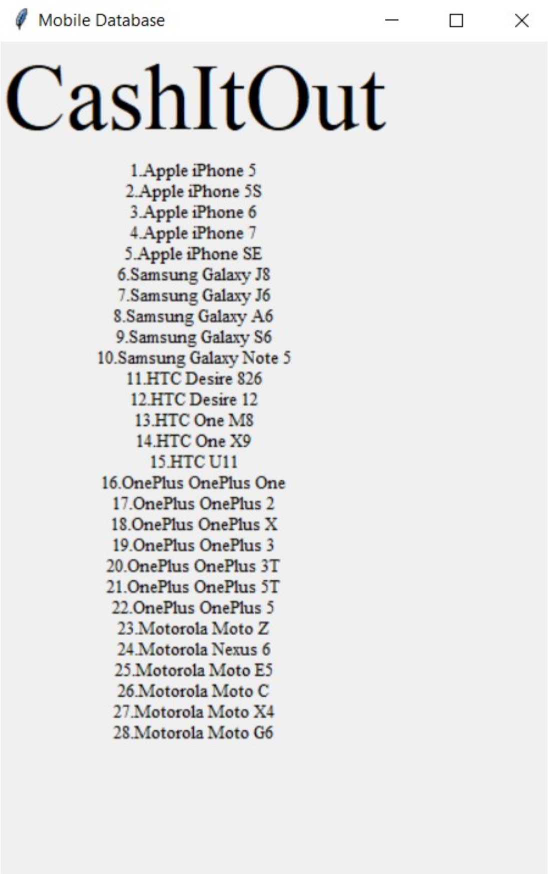
Name AMRIT
Password *********

Logged in as : AMRIT

Admin Log and View Database:

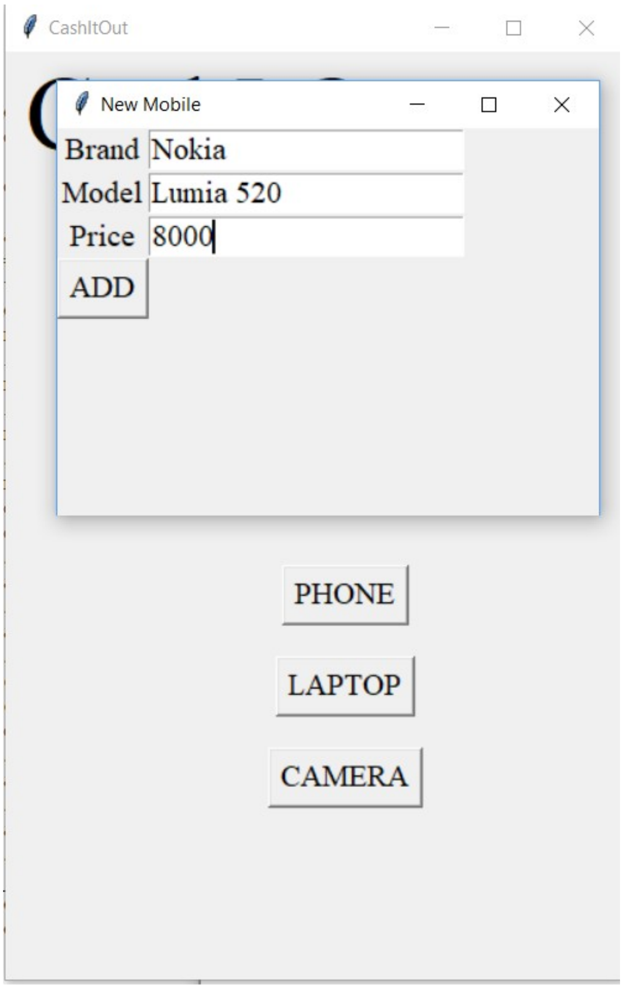


```
AMRIT:2018-11-12 17:52:36.776684
AMRIT:2018-11-13 22:44:05.714873
AMRIT:2018-11-13 23:11:48.414352
AMRIT:2018-11-13 23:13:37.299422
AMRIT:2018-11-13 23:15:13.998790
```



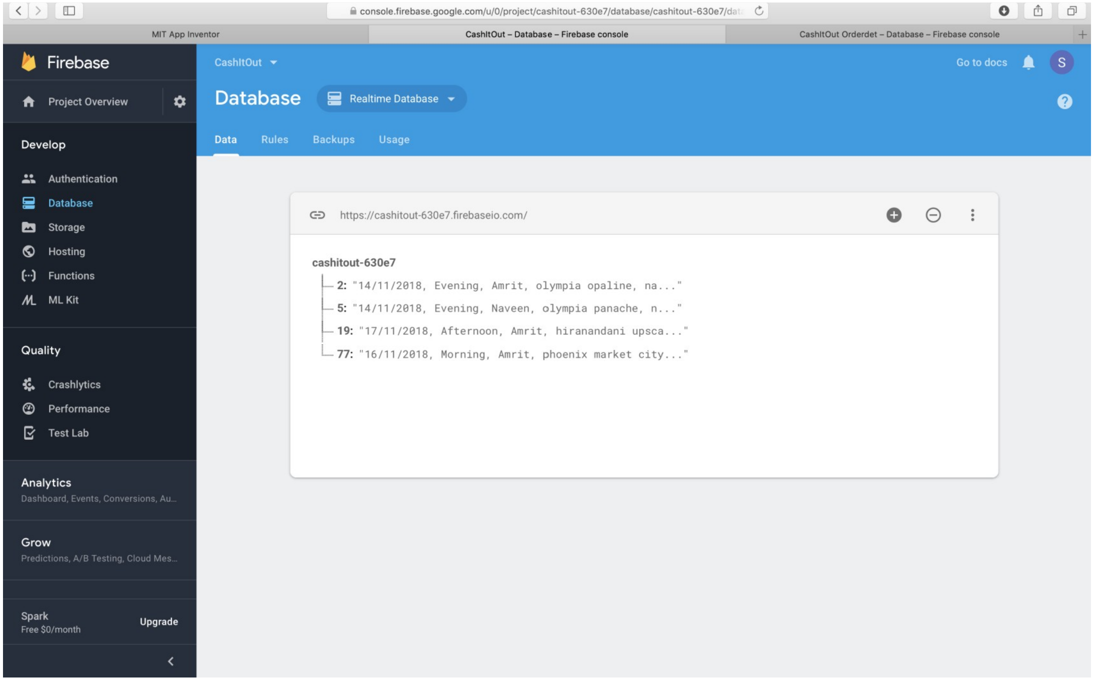
```
1.Apple iPhone 5
2.Apple iPhone 5S
3.Apple iPhone 6
4.Apple iPhone 7
5.Apple iPhone SE
6.Samsung Galaxy J8
7.Samsung Galaxy J6
8.Samsung Galaxy A6
9.Samsung Galaxy S6
10.Samsung Galaxy Note 5
11.HTC Desire 826
12.HTC Desire 12
13.HTC One M8
14.HTC One X9
15.HTC U11
16.OnePlus OnePlus One
17.OnePlus OnePlus 2
18.OnePlus OnePlus X
19.OnePlus OnePlus 3
20.OnePlus OnePlus 3T
21.OnePlus OnePlus 5T
22.OnePlus OnePlus 5
23.Motorola Moto Z
24.Motorola Nexus 6
25.Motorola Moto E5
26.Motorola Moto C
27.Motorola Moto X4
28.Motorola Moto G6
```

Add gadget to database:



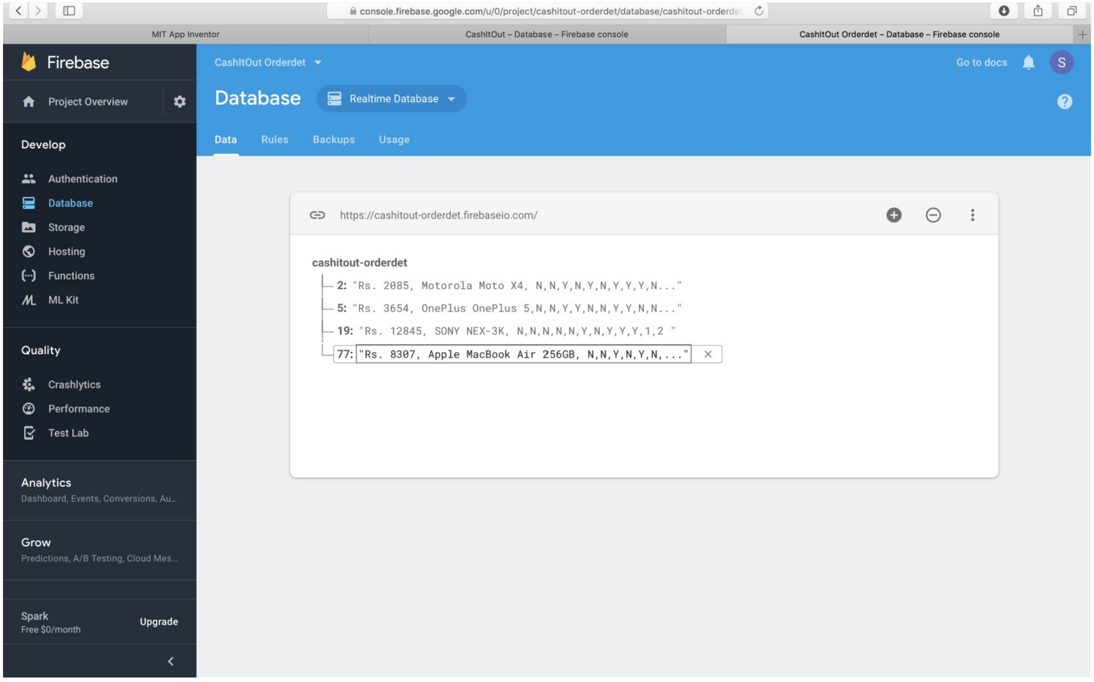
Brand Nokia
Model Lumia 520
Price 8000

Cloud Database:


console.firebase.google.com/u/0/project/cashitout-630e7/database/cashitout-630e7/dat
MIT App Inventor
CashItOut – Database – Firebase console
CashItOut Orderdet – Database – Firebase console
Firebase
Project Overview
Develop
Authentication
Database
Storage
Hosting
Functions
ML Kit
Quality
Crashlytics
Performance
Test Lab
Analytics
Dashboard, Events, Conversions, Au...
Grow
Predictions, A/B Testing, Cloud Mes...
Spark
Free $0/month
Upgrade
CashItOut
Go to docs
S
Database
Realtime Database
Data
Rules
Backups
Usage

https://cashitout-630e7.firebaseio.com/

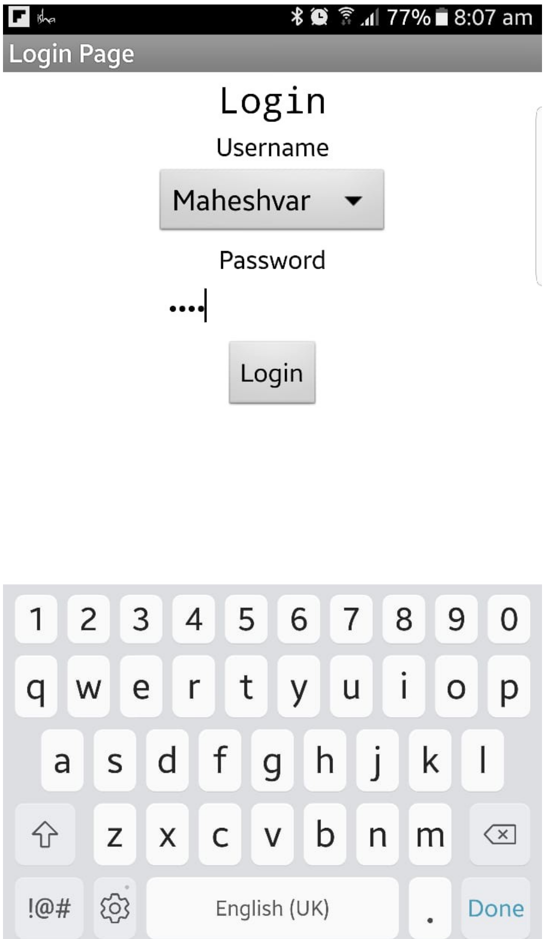
```
cashitout-630e7
  2: "14/11/2018, Evening, Amrit, olympia opaline, na..."
  5: "14/11/2018, Evening, Naveen, olympia panache, n..."
  19: "17/11/2018, Afternoon, Amrit, hiranandani upsca..."
  77: "16/11/2018, Morning, Amrit, phoenix market city..."
```



https://cashitout-orderdet.firebaseio.com/

```
cashitout-orderdet
  2: "Rs. 2085, Motorola Moto X4, N,N,Y,N,Y,N,Y,Y,Y,N..."
  5: "Rs. 3654, OnePlus OnePlus 5,N,N,Y,Y,N,N,Y,Y,N,N..."
  19: "Rs. 12845, SONY NEX-3K, N,N,N,N,N,Y,N,Y,Y,Y,1,2 "
  77: "Rs. 8307, Apple MacBook Air 256GB, N,N,Y,N,Y,N,..."
```

Pickup person:



Login Page

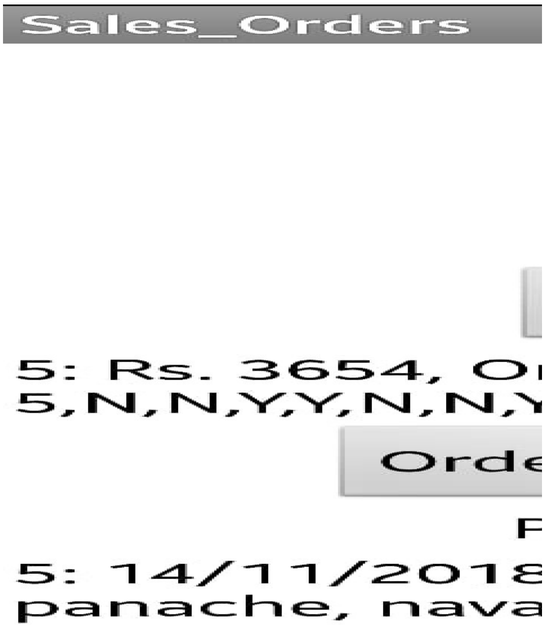
Login

Username

Maheshvar

Password

••••

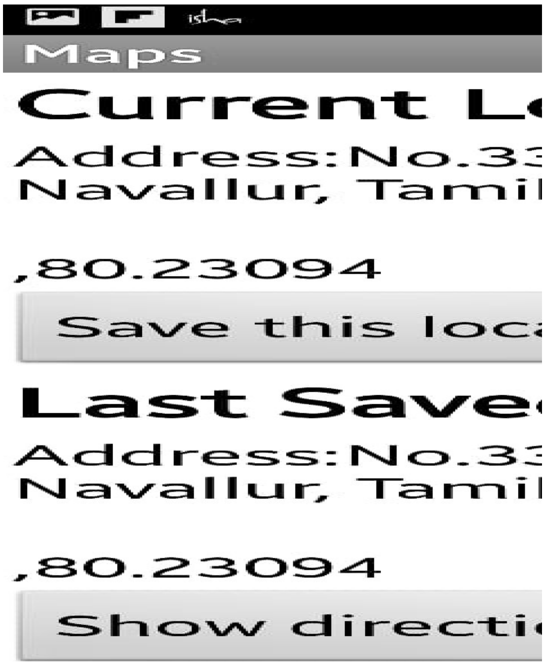


Sales_Orders

5: Rs. 3654, O
5,N,N,Y,Y,N,N,Y

F

5: 14/11/2018
panache, nava



Maps

Current L

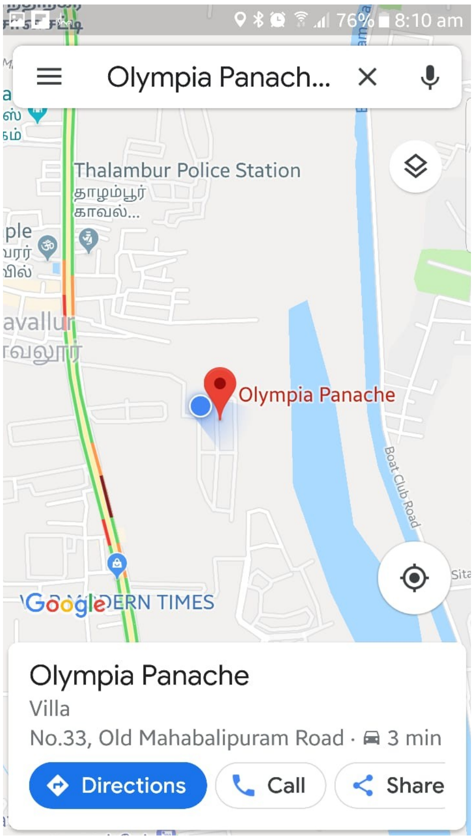
Address:No.33
Navallur, Tamil

,80.23094

Last Save

Address:No.33
Navallur, Tamil

,80.23094



Olympia Panache

Villa

No.33, Old Mahabalipuram Road · 3 min