



Project on Inventory Control System



PICS Team

Mohammed Abdul JabbarZeeshan
ChandranJohanan
KanwaljeetsinghDhaliwal
KavithaPoola

Executive Summary

This is the version 1.4 of the Software Requirement Specification (SRS). This SRS is created by PICS Team that includes designing a system on inventory control management for Rundle Bistro Bar. This software project management plan aims at providing a systematic and organized approach to all stock related queries of the business. This project is focus on the developing an interactive system that will facilitate the Rundle Bistro Bar, client Mr. Michael Fourth and Mr. Jake Robinson to order stock, verifies stock and request for the new stock.

This application will have the capability to allow user specific functionality based on their login. The user groups are spread across 4 types ranging from administrator, stock requester, stock controller and bistro staff. The functionalities are based on the user group. The designed application has the ability to cater to the specific user group. This project on inventory control management system will be completed within three months starting from 23rd July, 2013 to 11th October, 2013. The estimated fund for this project is 12,000 AUD. The phases for this project include five steps of the development life cycle which are Analysis Phase, Planning Phase, Design Phase, and Implementation Phase, testing / maintenance Phase.



PICS Team

Name	Duty	Contact	E-mail
K T Lau	Project Supervisor	+61 421122628	ktlau@tafesa.com.au
Mohammed Abdul JabbarZeeshan	Project Manager / Technical Head	+61 410793218	majabbarzeeshan@yahoo.com
ChandranJohanan	Programmer / Design Architect	+61 450614011	chandranjohanan@gmail.com
KanwaljeetsinghDhaliwal	System Analyst / Quality Analyst	+61 450452488	Kanwaljeet14@gmail.com
KavithaPoola	Risk Manager / Database Administrator	+61 432432849	Kavitha.poola@gmail.com

Version History

Date	Person	Version	Details
26/08/2013	Zeeshan	1.0	Create Software Requirement Specification (SRS)
30/08/2013	Chandran	1.1	Requirements Analysis
03/09/2013	Kanwaljeet	1.2	Overview the Requirements and Finalized SRS Draft
16/09/2013	Kavitha	1.3	Design Database and Overview the Document
27/09/2013	Zeeshan, Chandran, Kanwaljeet, kavitha	1.4	Compile Team Members Part and Finalized complete Document

EXECUTIVE SUMMARY	1
VERSION HISTORY	3
1. INTRODUCTION	6
1.1 Project Name	6
1.2 Purpose	6
1.3 Scope	6
1.4 Objectives	7
1.5 Assumptions	7
1.6 Deliverables	7
1.7 Length of the Project	10
1.8 Client Information	11
1.9 Team Details and Project Manager	11
1.10 Used Acronyms	12
2. OVERVIEW OF THE PROPOSED INVENTORY CONTROL SYSTEM.....	13
2.1 Description.....	13
3. PROJECT REQUIREMENTS	14
3.1 System Context Diagram	14
3.2 Use case Scenario.....	14
3.3 Procedure of functions.....	14
Administrator	14
Stock Requester	15
Stock Controller.....	15
Bistro Staff.....	15
3.4 Use case diagram	16
3.5 High level storyboards.....	17
Storyboard - Login Screen	17
Button Sample.....	17

3.6 Database requirements	18
3.7 Activity Diagram	18
Activity diagram for Admin	18
Activity diagram for Stock Requester	19
Activity diagram for Stock Controller	20
Activity diagram for Bistro Staff	21
3.8 Data Flow Diagram (DFD)	21
Data Flow Diagram (System Layout)	22
3.9 User Interface (GUI)	23
System Layout 1	23
System Layout-2	23
System Layout-3	24
System Layout – 4	24
System Layout -5	25
System Layout-6	25
System Layout-7	26
System Layout-8	26
System Layout-9	27
4. DATABASE DESIGN	28
4.1 Data Dictionary	28
4.2 Database schema	28
4.3 Entity-Relationship Diagram	29
4.3.1 ER diagram 1	29
4.3.2 ER diagram 2	30
5. FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS	31
5.1 Functional Requirements	31
5.2 Non-functional Requirements	32
6. SIGN-OFF SHEET	33
6.1 Team Members Sign-off Sheet	33
6.2 Client Sign-off Sheet	34
7. REFERENCES	35

1. Introduction

1.1 Project Name

Project on Inventory Control System (PICS)

1.2 Purpose

The project purpose revolves around creating an inventory control management system for the client and users of the business. The project details include stock information, managing stock, and ordering stock and review the stock for the business operated in Rundle Bistro Bar. Currently they are using Microsoft Excel to store all the inventory details for the stock management and in future, will update to an interactive database. In the existing system, all the entries need to be entered manually and it's not reliable. It doesn't provide data security and data can be lost during any damage or system crash existed in to the system. The new system will provide the reliability and security to the stored data and it also provide backup to the user. The allocated cost for the project is 12,000 AUD and the time duration is three months.

1.3 Scope

The system that is currently used to manage stocks needs to be updated to an interactive system that will facilitate the Bistro to order stock, verifies stock and request new stock. Creating an application for the inventory management for the business so that the respective user can order stock based on their needs which allow the user to put entries in to the database for better control over the stock and they can also have better control on verification and validation on the stock. The user can have easy access to request the stock according to their needs. The application will have the capability to allow user specific functionality based on their login. The user groups are spread across 4 types ranging from administrator, stock requester, stock controller and bistro staff. The functionalities are based on the user group. The designed application has the ability to cater to the specific user group.

1.4 Objectives

The objective of this project aims to develop an online application to store and maintain the stock information of the Rundle Bistro Bar. The project is to create an application with a login ID at front page to provide authorization for the staff of the business to manage the inventory control of the business. The new system will be very easy to use for the users and it will also allow ease to order, verify and request for the stock used in the Bistro. The new system provides simple changeover from the current Database system to electronic Database system and it will be also easy to maintain.

1.5 Assumptions

The following assumptions will affect the progress of the project on inventory control system.

- The new system will be available on the World Wide Web services.
- Inventory control is currently maintained on the Excel sheet and the information can be electrically transferred to the new system created.
- It is assumed that the client will be the only user for the system being developed.
- The time of the project is maximum three months and it should be completed by 11th October, 2013.
- The resources of the project will be acquired directly from the client and all the parties involved with the business.

1.6 Deliverables

These are the following deliverables for the project on inventory control system.

1. Software Project Management Plan (SPMP)

It describes the outline of the entire project including details like people working in the project the guidelines needed to be followed in the project and also the entire duration of the project.



2. Software Requirements Specifications (SRS)

It describes the requirements put forward by the client. The requirements includes functional and non-functional as well.

3. Software Architecture Design Document (SADD)

It describes the overall design of the system.

4. Work Breakdown Structure

It describes the breakdown of work by each team member involved in the project and also defines the total scope of the project.

5. Milestone Report

It describes the present status and important milestones of the project.

6. Software Design Document (SDD)

It is the in detailed design of the system which involves series of the diagrams like, class diagrams, use case diagrams, sequence diagrams and collaboration diagrams.

7. Risk Management Plan

It describes the methods to manage risks involved in the project.

8. Quality Assurance Plan

It involves methods and processes to make sure the end product in the project meets the required the quality level.

9. Source and Object Code

This is the part of deliverables which allows the client to run the code and maintain the required project.

10. User Manual

It displays the system functionality and guide lines for the user to operate the project.

Task	Due Date	Responsible Member
Software Project Management Plan (SPMP)	24/07/2013	ALL
Software Requirements Specifications (SRS)	1/08/2013	ALL
Software Architecture Design Document (SADD)	5/08/2013	ALL
Work Breakdown Structure	25/07/2013	ALL
Milestone Report	7/08/2013	ALL
Software Design Document (SDD)	10/08/2013	ALL
Risk Management Plan	14/08/2013	ALL
Quality Assurance Plan	14/08/2013	ALL
Source and Object Code	14/08/2013	ALL
User Manual	15/08/2013	ALL

1.7 Length of the Project

In this project each team member is required to spend 200 hours duration for the project. In our PICS team, there are four members which equate to spending a total 800 hours over the length of the project.

Work Package/ Action Performed	Responsible Member	Time Duration
Software Project Management Plan (SPMP)	ALL	75 Hours
Software Requirements Specifications (SRS)	ALL	75 Hours
Software Architecture Design Document (SADD) / Software Design Document (SDD)	ALL	150 Hours
Work Breakdown Structure	ALL	70 Hours
Milestone Report	ALL	80 Hours
Risk Management Plan	ALL	100 Hours
Quality Assurance Plan	ALL	100 Hours
Source and Object Code / User Manual	ALL	150 Hours
Total		800 Hours



1.8 Client Information

The client of the Rundle Bistro Bar is Mr. Michael Fourth; he is also the stake holder of the Rundle Bistro Bar. The manger is Mr. Jake Robinson who can be contacted to organize a direct meeting with the stake holder when needed. The contact detail for the manager is jake.robinson@gmail.com.au

1.9 Team Details and Project Manager

Role	Name	Position
Stake Holder	Mr. Michael Fourth	Sponsor
Manager	Mr. Jake Robinson	Consultant
Project Manager	Mohammed Abdul Jabbar Zeeshan	Project Manager / Technical Head
Team Member 1	Chandran Johanan	Programmer / Design Architect
Team Member 2	Kanwaljeetsingh Dhaliwal	System Analyst / Quality Analyst
Team Member 3	Kavitha Poola	Database Administrator / Risk Manager

1.10 Used Acronyms

Terms / Acronyms	Definition
PICS	Project on Inventory Control Management
PM	Project Manager
DBMS	Database Management System
SPMP	Software Project Management Plan
SRS	Software Requirements Specification
SADD	Software Architecture Design Document
SDD	Software Design Document
WBS	Work Breakdown Structure
RMP	Risk Management Plan
QAP	Quality Assurance Plan
HTML	Hypertext Markup Language
MySQL	My structured Query Language
PHP	Hypertext Preprocessor



2. Overview of the Proposed Inventory Control System

This project on proposed inventory control system for the Rundle Bistro Bar designed to provide better interface for their users to understand the new web-application which performs the functionality within the inventory control system such as, order stock, verifies stock and request for the new stock. This Software Requirement Specification (SRS) Document also represents Database Design for the new system such as, Use-case diagram, class diagram, ER diagram etc. to represent the relationship between the system and the actors, and it also helps users, stakeholders and admin to understand the new web-application for the inventory control system. The database design tools also provide the better understanding for the document of SRS to the user.

2.1 Description

This project aims to create an interactive system based on web-based application to order stock, verifies stock and request for the new stock for the inventory control system of the Rundle Bistro Bar. The stake holder and manager can decide for the particular stock should be ordered, verified, requested or not. The estimated time for this Project on Inventory Control System is three months started from July to October and the estimated cost for the project is 12,000 AUD.

This interactive system is based on the web-based application which can run on any internet browsers such as, Google chrome, internet explorer etc. The system will also have some functionality which needs to be focused for the web-based application is as follows:

- Order Stock: this functionality allows user to order the particular stock.
- Verifies Stock: this functionality allows user to verify the particular stock.
- Request Stock: this functionality allows user to request for the particular stock.

3. Project Requirements

3.1 System Context Diagram

It is a diagram which is the highest level of data flow diagram. It shows the external environment of the developed system. This diagram contains only single process that represents the whole system. Every other entity which is outside system and diagrams related to each type are represented.

3.2 Use case Scenario

Use case diagram is which describes the user interaction with the system. There are three main elements of use case diagram such as actor, use case and relationship between them. A scenario is described as an instance which use case include, and it is represented in a only one path throughout the use case. It depends on reaction of the use case as user activities and also interaction of it with different related objects.

In this section the functions are designated using use case diagram where user interacts with the system.

The four actors involved in this system are:

- Administrator
- Stock Requester
- Stock Controller
- Bistro Staff

3.3 Procedure of functions

Administrator

- Administrator, Stock Requester, Stock Controller, Bistro staff have their own login details like user id and password to access the application.
- Administrator logs into the system with username and password
- Administrator add/ remove the products from the system
- Administrator logout from the system.



Stock Requester

- Stock Requester login with his username and password.
- Stock Requester selects the type of the order.
- Takes the order and enters the details.
- Generates an invoice number for the order taken.
- Logs out from the system.

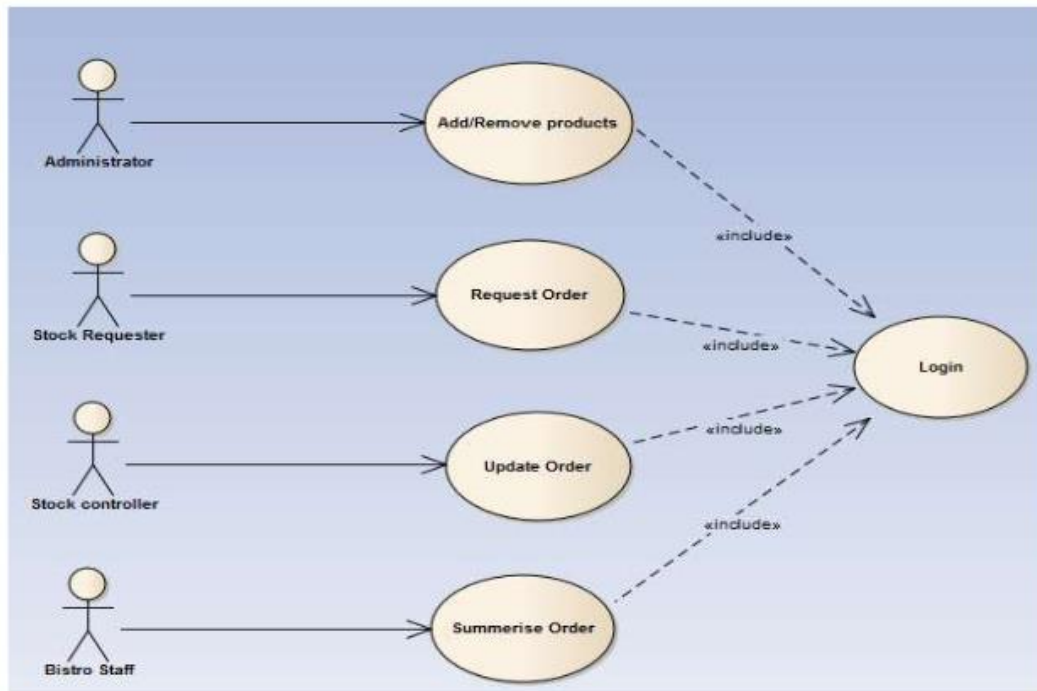
Stock Controller

- Stock Controller login with his username and password.
- Enters the invoice number and updates information if any.
- Confirms the products before it goes to final order.
- Logs out from the system.

Bistro Staff

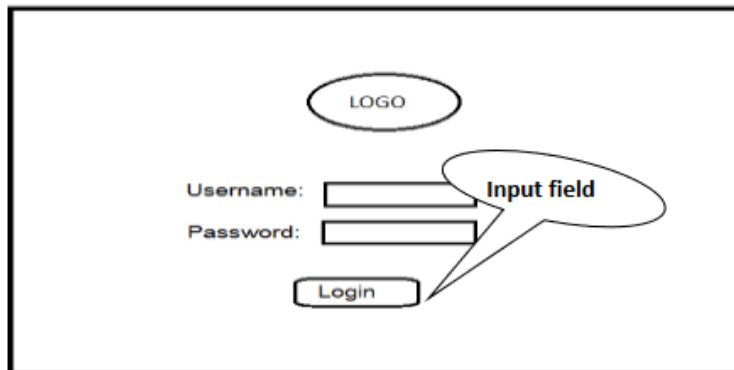
- Bistro Staff login with his username and password.
- Confirms the order with updated products.
- Summarizes the request before printing the invoice.
- Prints the invoice for payment.
- Logs out from the system.

3.4 Use case diagram



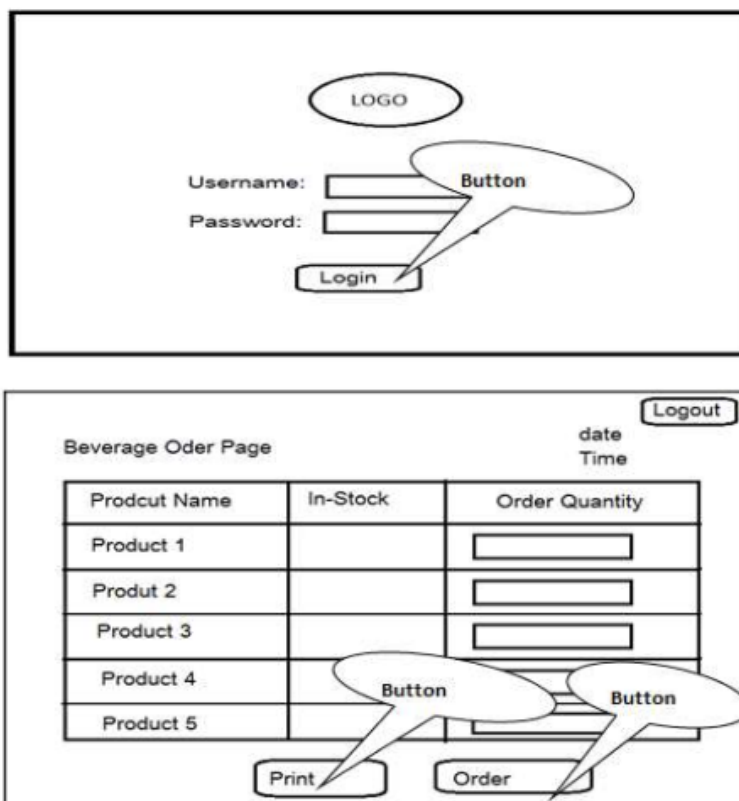
3.5 High level storyboards

Storyboard - Login Screen



Button Sample

There are many buttons used in this system such as Login, Order, Print which are shown as follows:



3.6 Database requirements

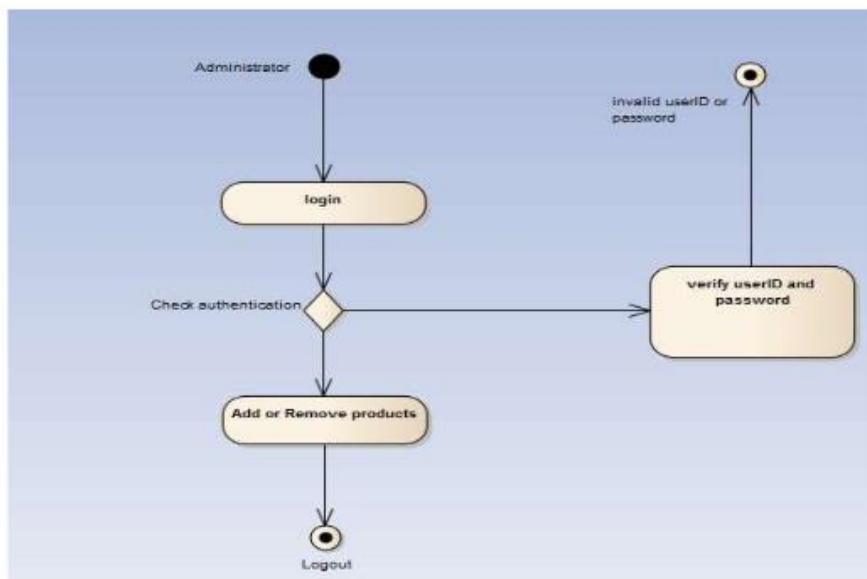
- Product_Type table will be accessed for selecting type of the product
- Order table will be accessed for order ID
- Product table will be accessed for product ID
- Invoice table will be accessed for invoice number
- Authentication table will be accessed for username and password

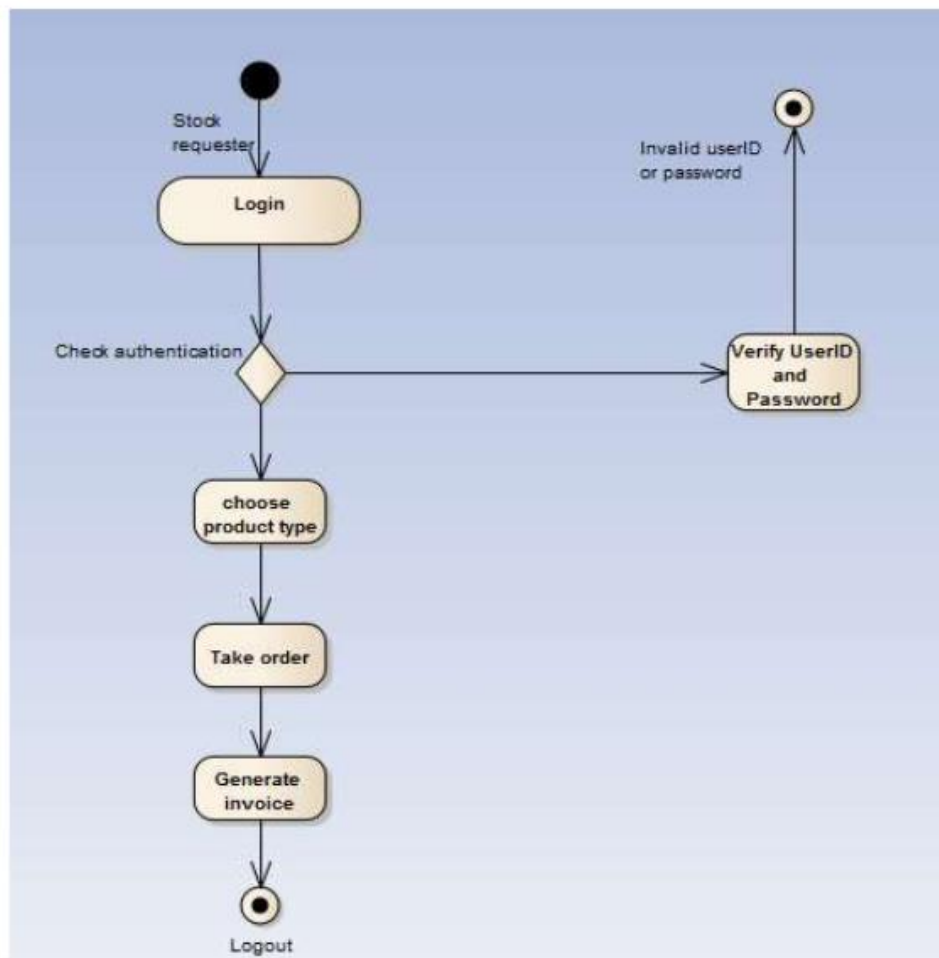
3.7 Activity Diagram

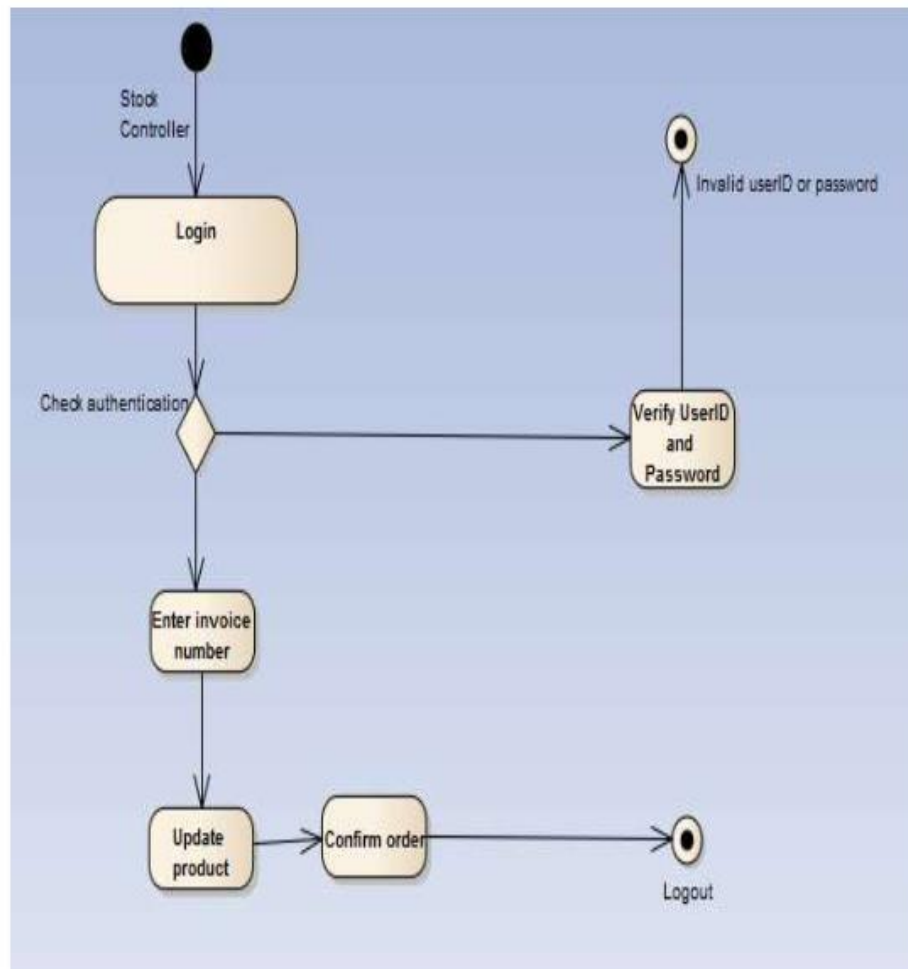
An activity diagram is the flow of activities done on a system. It includes the main flow of the processes. It includes many activities like parallel flow, branching, lane and many others.

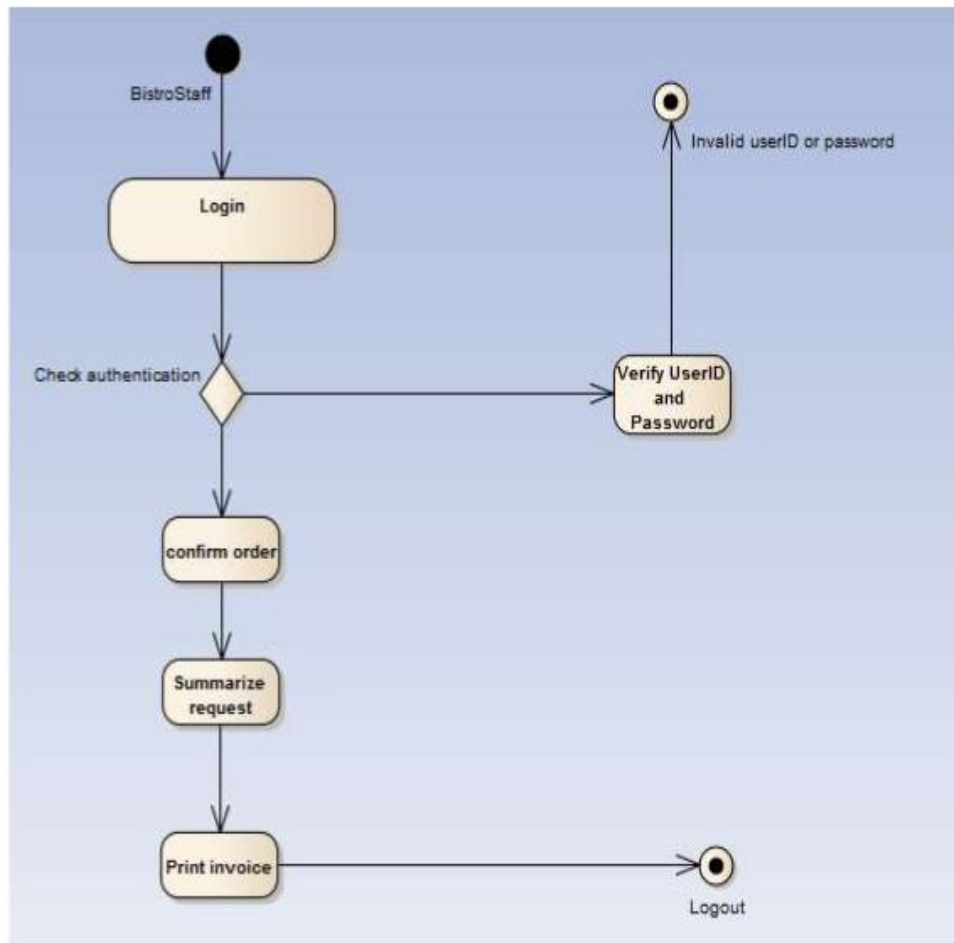
The activity diagram for administration is shown below:

Activity diagram for Admin

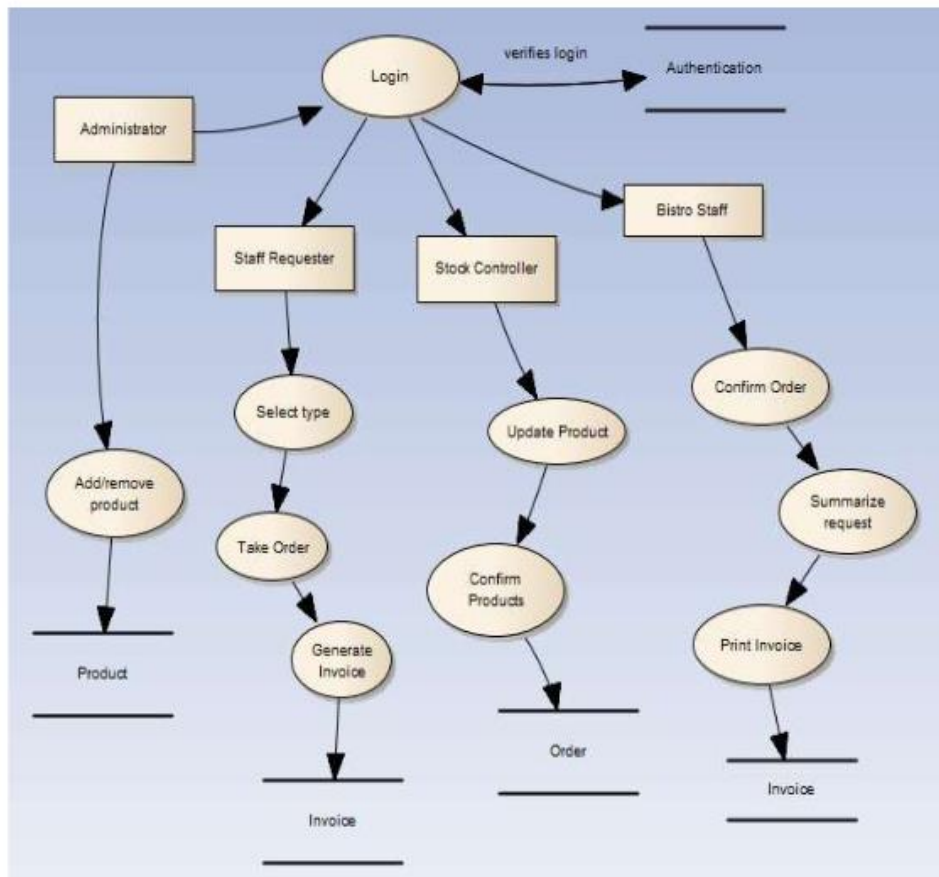


Activity diagram for Stock Requester

Activity diagram for Stock Controller

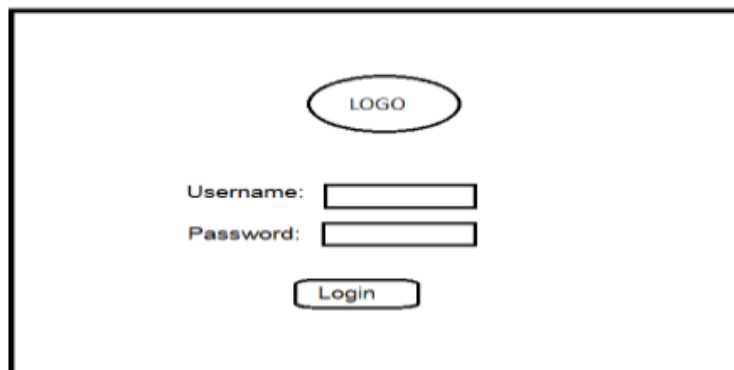
Activity diagram for Bistro Staff**3.8 Data Flow Diagram (DFD)**

Data Flow Diagram is the graphical representation of flow of the data which are included in the process. It is the explosion of the context diagram. It includes nine processes in this diagram. Each process indicates a number while created. Data stores and other entities are also included in data flow diagram. The following diagram shows how the data will be flown in activities that take place in the system:

Data Flow Diagram (System Layout)

3.9 User Interface (GUI)

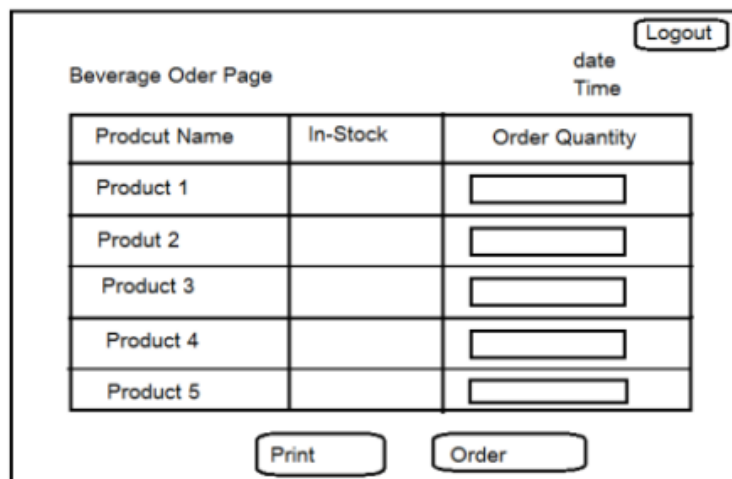
System Layout 1



A login screen interface. At the top center is an oval labeled "LOGO". Below it, the text "Username:" is followed by a rectangular input field. Below that, the text "Password:" is followed by another rectangular input field. At the bottom center is a rounded rectangular button labeled "Login".

Figure 3.9.1: Login Screen

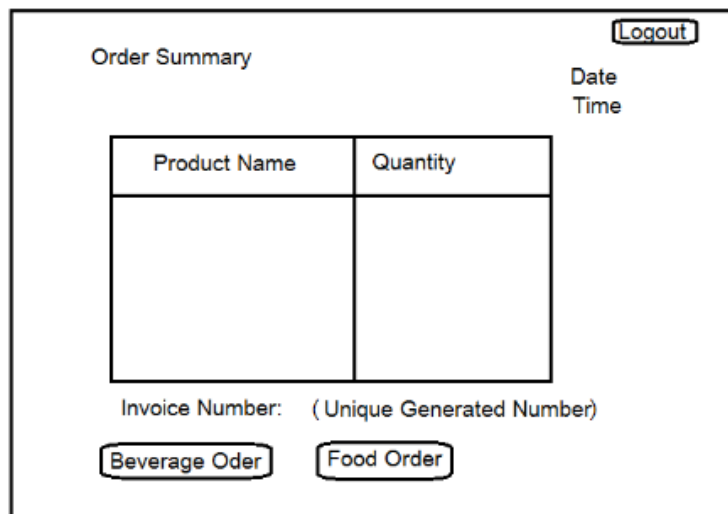
System Layout-2



A beverage order page interface. At the top right is a rounded rectangular button labeled "Logout". Below it, the text "date" and "Time" are displayed. The main part of the page is a table with three columns: "Product Name", "In-Stock", and "Order Quantity". The table has five rows, each for a product (Product 1 to Product 5). The "In-Stock" column is empty for all products. The "Order Quantity" column contains a rectangular input field for each product. Below the table are two rounded rectangular buttons: "Print" and "Order".

Product Name	In-Stock	Order Quantity
Product 1		<input type="text"/>
Product 2		<input type="text"/>
Product 3		<input type="text"/>
Product 4		<input type="text"/>
Product 5		<input type="text"/>

Figure 3.9.2: Order page

System Layout-3

Order Summary

Logout

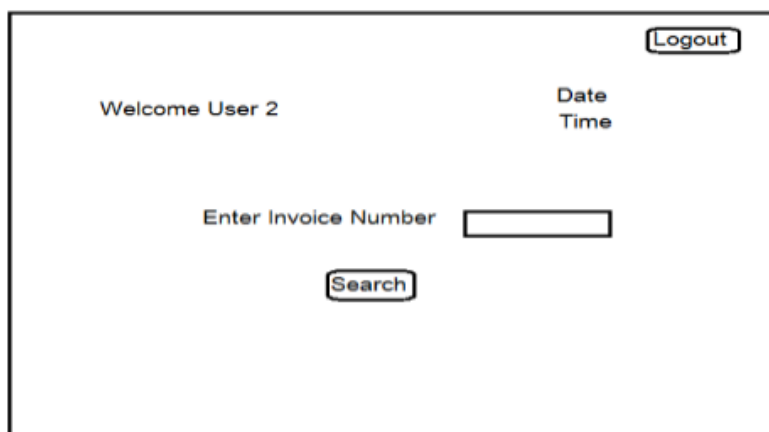
Date
Time

Product Name	Quantity

Invoice Number: (Unique Generated Number)

Beverage Oder Food Order

Figure 3.9.3: Order summary page

System Layout – 4

Welcome User 2

Logout

Date
Time

Enter Invoice Number

Search

Figure 3.9.4: Stock Requester login

System Layout -5

Invoice Number: (Label, value from textbox)

Logout

Date
Time

Prodcut Name	Quan Ordered	Quan Arrived
		<input type="text"/>

Confirm

Figure 3.9.5: Taking order

System Layout-6

Logout

Date
Time

Product Updated

Enter Invoice Number

Search

Figure 3.9.6: Products update

System Layout-7

Logout

Beverage Request

Date
Time

Product Name	Quan Presnt	Quan Req.
		<input type="text"/>
		<input type="text"/>
		<input type="text"/>
		<input type="text"/>

Order

Figure 3.9.7: Confirm Order

System Layout-8

Logout

Product Request Summary

Date
Time

Product Name	Quantity Requested
(Products requested from previous page)	

Print

Request Screen

Figure 3.9.8: summarize Order

System Layout-9

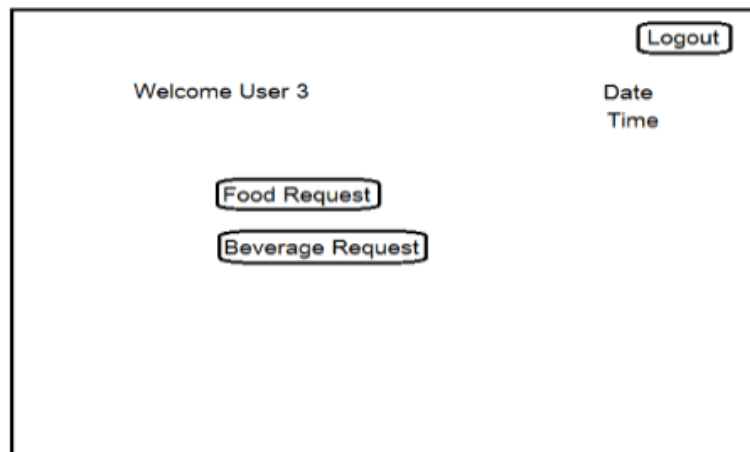


Figure 3.9.9: Request order

4. Database Design

4.1 Data Dictionary

Data Dictionary consists of all tables, fields, data type, size and description of the database. It is easy to find out the fields or files from the database with data dictionary itself. It defines the database of the organization which is in the file format. It is not visible to the normal users as it is hidden from the sight of other people. It is always kept as a secret by database management systems in order to secure and avoid modification of the contents included in it.

Data dictionary does not have any records included in it for retrieving the data.

Moreover, it has the syntax and format of the data involved in the database. As a result, it helps to access the data from database with that format.

4.2 Database schema

Rundle Bistro Bar Database Schema				
Table	Fields	Data Types	Size	Description
Authentication	<u>AuthID</u>	Numeric	10	PK
	<u>User_Name</u>	Varchar	50	
	<u>Password</u>	Varchar	50	
	<u>User_type</u>			
Product_Type	<u>P_Type_ID</u>	Numeric	10	PK
	<u>Type_Name</u>	Varchar	50	
Product	<u>Product_ID</u>	Numeric	10	PK
	<u>Product_Name</u>	Varchar	50	
	<u>In_Stock</u>	Numeric	10	
	<u>P_Type_ID</u>	Numeric	10	FK
Order	<u>Order_ID</u>	Numeric	10	PK
	<u>Order_date</u>	Date		
	<u>Invoice_Num</u>	Numeric	10	FK
Invoice	<u>Invoice_number_ID</u>	Numeric	10	
	<u>Invoice_Num</u>	Numeric	10	PK
	<u>Invoice_Date</u>	Date		
Order_Product	<u>Product_ID</u>	Numeric	10	FK
	<u>Order_ID</u>	Numeric	10	FK
	<u>Arrival_date</u>	Date		
	<u>Order_Qty</u>	Numeric	10	
Product_Invoice	<u>Order_Arr</u>	Date		
	<u>Product_ID</u>	Numeric	10	FK
	<u>Invoice_num</u>	Numeric	10	FK
	Quantity	Numeric	10	

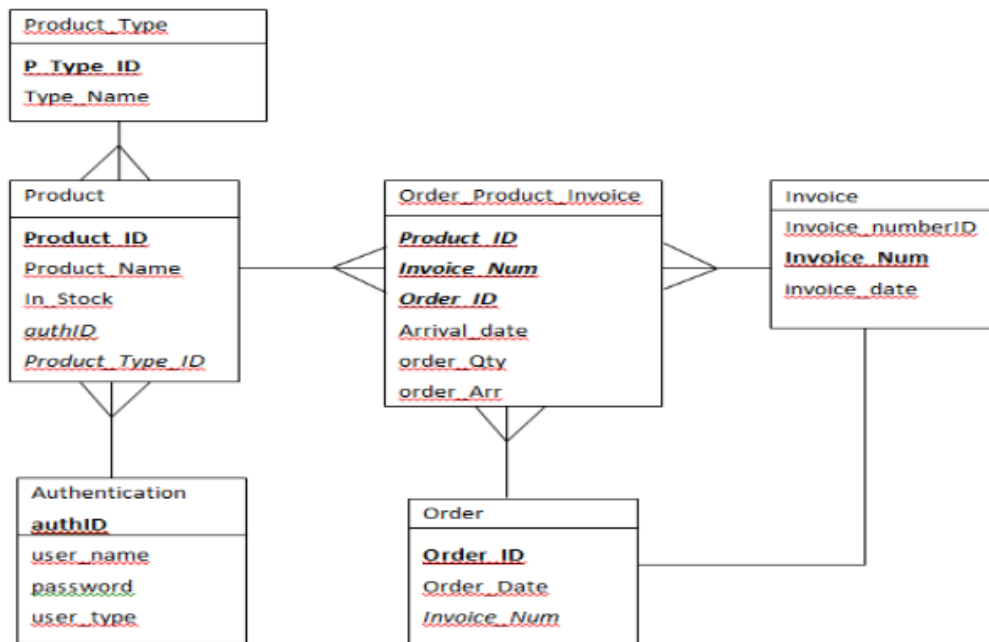
4.3 Entity-Relationship Diagram

Entity Relationship diagram shows the relationship among the entities. It is the basic plan made to understand the relations among the entities. However, it may be changed late on during the development according to the requirements.

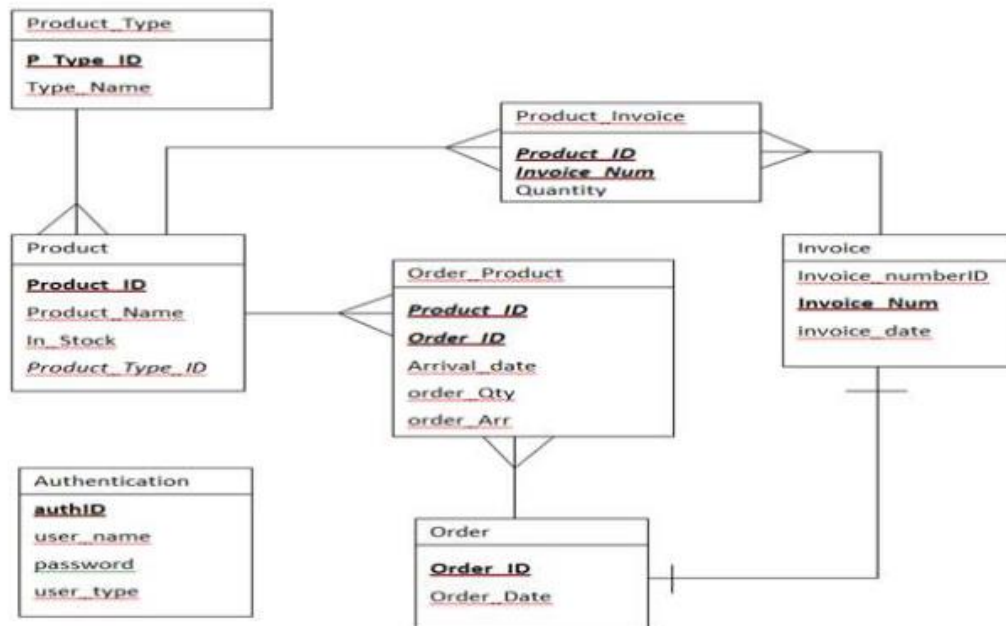
The ER- diagram for database developed is shown below with appropriate tables and attributes included in it. However, ER-diagram may change during the development and implementing of the database.

There are two diagrams that are changed according to the development and implementation of the system

4.3.1 ER diagram 1



4.3.2 ER diagram 2



5. Functional and Non-functional Requirements

The new system will have both the functional and non-functional requirements which are as follows:

5.1 Functional Requirements

Requirement No.	Requirement Name	Requirement Details	Priority
5.1.1	Authentication	The new system will provide the functionality that allows the client and manager of rundle bistro bar to login to the new system with their unique username and password. Then they will be guided to the next page based on their username.	Essential
5.1.2	Validation	If the client will enter the wrong username or password, then they cannot access or login to the new system.	Essential
5.1.3	Browse stock details	The new system will allows the client to browse all the available stock details after successful login in to the system.	Essential
5.1.4	Update stock	This function allows manager and stake holder update the details of the stock.	Essential
5.1.5	Request stock	This function allows user to request for the stock from the store to the Bistro.	Essential
5.1.6	Enter new item in inventory	This function allows user to enter or add the new item in the inventory.	Essential
5.1.7	Remove item	This function allows user to remove or delete the item from the stock.	Essential
5.1.8	Place an order	This function allows user to place an order for the required stock to the respective supplier.	Essential
5.1.9	Generate invoice	The new system will also have the functionality to generate the invoice to check the ordered stock.	Essential

5.2 Non-functional Requirements

Requirement No.	Requirement Name	Requirement Details	Priority
5.2.1	Usability	The new system will be simple and easy for the use to client.	Essential
5.2.2	Security	The new system will be secure from the unauthorized access.	Essential
5.2.3	Privacy	The new system will also provide the safety to the user details and stock details.	Essential
5.2.4	User-Friendly	The new system will provide more interaction to the user so that user can easily interact with the new system.	Essential
5.2.5	Extensibility	The new system will have extensibility in future for the implementation of the new stock or items.	Negotiable

6. Sign-off Sheet

6.1 Team Members Sign-off Sheet

Name	Duty	Date	Signature
K T Lau	Project Supervisor	--/--/----	
Mohammed Abdul JabbarZeeshan	Project Manager / Technical Head	--/--/----	
ChandranJohanan	Programmer / Design Architect	--/--/----	
KanwaljeetsinghDhaliwal	System Analyst / Quality Analyst	--/--/----	
KavithaPoola	Risk Manager / Database Administrator	--/--/----	



6.2 Client Sign-off Sheet

I hereby accept and acknowledge that the stock ordered by this application will meet the requirements of the PICS project.

Client Name	(: First Name / Last Name)
Signature	(:--/--/----
Date	(:-----)

7. References

1. Administrator (2007). *Project Management Plan Template - Free Project Plan*. [online] Retrieved from: <http://www.projectmanagementdocs.com/project-planning-templates/project-management-plan.html> [Accessed: 18 Sep 2013].
2. My.safaribooksonline.com (n.d.). *Project Management: Best Practices for IT Professionals > Managing Risks > Types of Risk in Project Management - Pg. : Safari Books Online*. [online] Retrieved from: <http://my.safaribooksonline.com/book/software-engineering-and-development/project-management/0130219142/managing-risks/ch13lev1sec4> [Accessed: 20 Sep 2013].
3. Policy.ballarat.edu.au (n.d.). *Project Management Framework Procedure*. [online] Retrieved from: <http://policy.ballarat.edu.au/university/projectmgt/ch02.php> [Accessed: 23 Sep 2013].
4. Heldman, K. (2006). *Project Management Professional Study Guide*. Hoboken: John Wiley & Sons, Inc.
5. Larson, E. & Gray, C. (2011) *Project Management: The Managerial Process* (5th Ed) Chapter 2, 3.
6. Joseph Phillips (2003). *PMP Project Management Professional Study Guide*. McGraw-Hill Professional, 2003.

