UNIVERSITY OF DAR ES SALAAM

COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CS332 OBJECT-ORIENTED PROGRAM DESIGN AND ANALYSIS

PROJECT TITLE: STOCK CONTROL SYSTEM

Name	Reg No.	Programme
Dummy Name	2015-04-XXXXX	Dummy Degree Programme

STOCK CONTROL SYSTEM

OVERVIEW

Stock control is the process of ensuring that appropriate amount of stock is maintained by the business, so as to be able to meet customer demands without delay while keeping the overall cost to a minimum. Stock control process involve having the right level of stock to satisfy customer needs and identify excess and old stock.

During stock control, it is not always advised to run stock too low but also having too much stock it can cost a lot of money. The estimated costs of holding stock which includes storage cost, insurance, keeping accurate tracking records and controlling to avoid theft are estimated to be ten to thirty percent of the overall stock value

Currently, management of stock in the business is done through traditional way which leads to the following problems; The use of paper-based system to record all information associated with stock always lead to the wastage of time, excessive inventory in stock and unable to move it quickly as well as misplacement of information during the process of receiving and delivering stock product.

MAIN OBJECTIVE

The main objective of Stock Control System is to provide the desired level of customer service by keeping track all stock item information through cost-efficient operations to minimize the inventory investment.

GOALS

The goals of the Stock Control system are: -

a) To avoid stock-outs by making sure that customers have access to products when they need.

b) To avoid excess inventory by balancing the fine line between too much and too little.
   To move goods efficiently by quickly receiving and storing products as they come in and when they go out.

c) To determine current stock level and value of stock by tracking the individual items.

d) Looking at sales records to find which item are good sellers, slow moving and which one are seasonal items.

e) To maximize profit margins.

MAIN PROCESSES

1) Management of Inventory
   a) Register inventories and their information.
   b) Calculate the number of items.
   c) Adding inventory categories.
   d) Specifying minimum and maximum number of inventory in the stock.
   e) Evaluate flow of inventory.
2) Management of users
   a) Registering users
   b) Adding user’s roles
   c) Mapping user to their respective roles.
3)

FUNCTIONAL REQUIREMENTS

Ref #	Function	Category
R.1.1	Users must login with credentials in order to use the system.	Evident
R.1.2	Display description and price for every items added to the system	Evident
R.1.3	Provide Notification about product status	Evident
R.1.4	Calculate the total number of items to a particular inventory item.	Hidden
R.1.5	Register products and associated information	Evident
R.1.6	Reduce inventory quantities when a sale is completed	Hidden
R.1.7	Notify when inventory item reaches minimum threshold	Hidden
R.1.8	Generate report for the completed sales	Hidden

NON-FUNCTIONAL REQUIREMENTS

Attributes	Constraints
Selection	The system will allow users to identify potential products
Usability	The system will be easy to use, learn adapt and users will become skillful while using it.
Correctness	The system must guarantee the correct result for the correct input data to obtained required results.
Security	System will provide security and protection of information through the following: - a. The system will sign-off user automatically when the system is idle for more than fifteen minutes. b. In order to use the system, system will authenticate user by asking them to enter credentials i.e. username/email and password c. All emails registered to the system will be verified in order to prevent user to enter unregistered email that will help password recovery process whenever is forgotten.

Scalability	The system will be able to allow scalability by allowing the integration with other technologies and new inputs depending on the existing potential technology in stock control.
Reliability	System will guarantee no inconvenience, unnecessary waiting time and be able to recover to its stable state after experiencing downtime.
Maintainability	The system should be easy to maintain to avoid unnecessary maintenance costs.

ACTORS

a. System administrator

   i) Login.

   ii) Register users.

   iii) Update user information.

   iv) Remove users.

b. Store keeper

   i) Login.

   ii) Add inventory product.

   iii) Update inventory product.

   iv) Remove inventory product.

   v) Print report.

   vi) View product information.

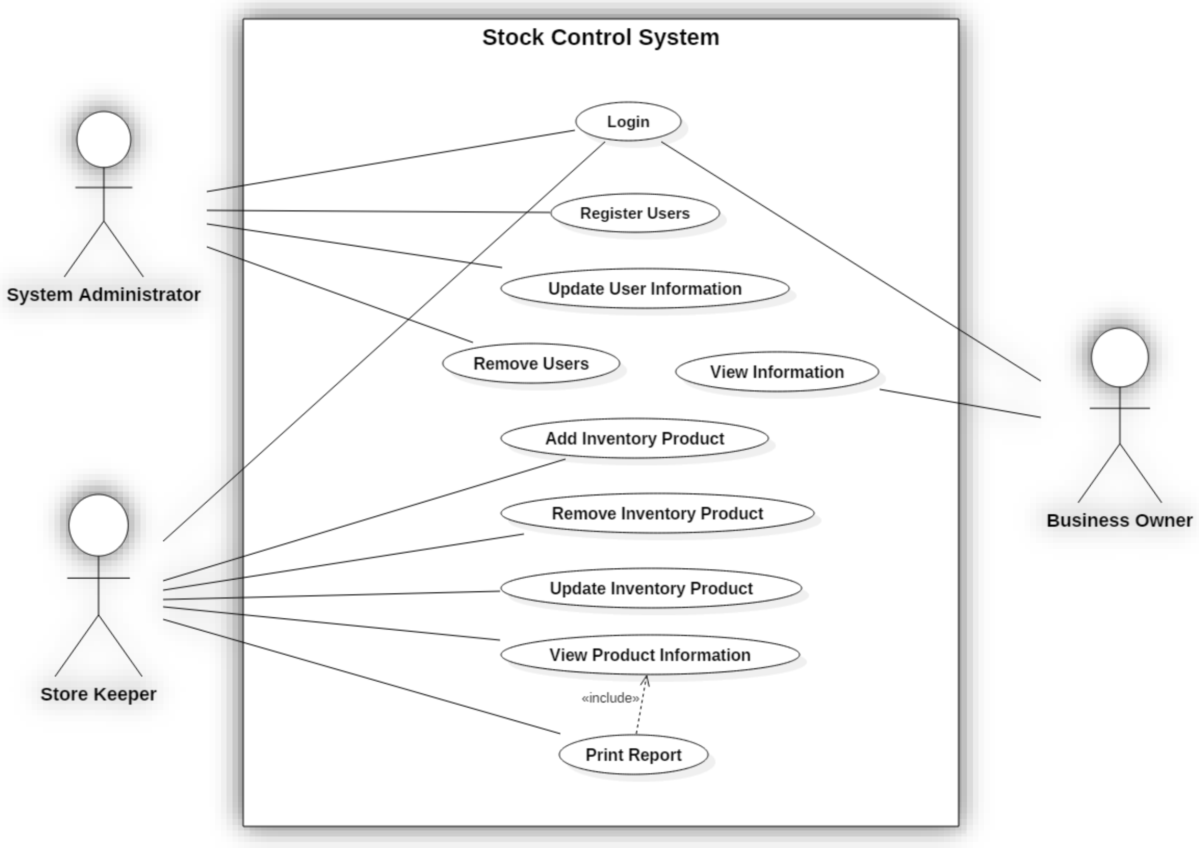
c. Business owner

   i) Login

   ii) View information

   iii) View business trends

USE CASE DIAGRAM



USE CASE DESCRIPTION

USE CASE No.	1
ACTOR(s)	Administrator, Store Keeper, Business Owner
USE CASE TITLE	Login
SHORT DESCRIPTION	This use case allows the actor(s) enter the system after being authenticated.
PRE-CONDITIONS	Users must be logging by using his/her credentials to be authenticated by the system.
POST-CONDITIONS	After successfully login to the user, user will be redirected to the page with the menu associated to his/her role in the system.
INITIAL ASSUMPTIONS	▪ The system administrator has the default account ▪ In order to add other users', system administrator will use his/her login credentials i.e. username and password and must logged in.
MAIN FLOW	▪ User enter the system address to the browser ▪ System prompt user with the login page that need user to supply logging credentials' ▪ User supply the logging credentials. ▪ System authenticate the user by going to the database to check if user data exist in the database. ▪ If user data exist in the database then the system will redirect user to the homepage where System operation for the user current logged in with the specified role will be displayed.
ALTENATE FLOW(s)	▪ If user forget his/her own logging credentials the system will give an option to recover his/her password.
EXCEPTION FLOW(s)	▪ If user enter his/her own password incorrect 3 times then the system will direct to page so that he/she can recover password.

USE CASE No.	2
ACTOR(s)	Administrator
USE CASE TITLE	Register user
SHORT DESCRIPTION	This use case allows administrator to add other system users.
PRE-CONDITIONS	Administrator must be logging using his/her credentials to be authenticated by the system.
POST-CONDITIONS	After successfully login, administrator will be redirected to the page with user registration form so that he/she can add user.
INITIAL ASSUMPTIONS	▪ The system administrator has the default account ▪ In order to add other users', system administrator will use his/her login credentials i.e. username and password and must logged in.
MAIN FLOW	▪ Administrator enter the system address to the browser ▪ System prompt user with the login page that need user to supply logging credentials. ▪ User supply the logging credentials. ▪ System authenticate the user by going to the database to check if user data exist in the database. ▪ If user data exist in the database then the system will redirect user to the page to add system users. ▪ Administrator will add user information and register user. ▪ Finally, administrator will sign out.
ALTENATE FLOW(s)	▪ If administrator fail to remove user the he/she will be prompt to try again.
EXCEPTION FLOW(s)	▪ If user enter his/her own password incorrect 3 times then the system will direct to page so that he/she can recover password.

USE CASE No.	3
ACTOR(s)	Administrator
USE CASE TITLE	Remove user
SHORT DESCRIPTION	This use case allows administrator to remove other system users.
PRE-CONDITIONS	Administrator must be logging using his/her credentials to be authenticated by the system.
POST-CONDITIONS	After successfully login, administrator will be redirected to the page with user's system list.
INITIAL ASSUMPTIONS	▪ The system administrator has the default account ▪ In order to add other users', system administrator will use his/her login credentials i.e. username and password and must logged in.
MAIN FLOW	▪ Administrator enter the system address to the browser ▪ System prompt user with the login page that need user to supply logging credentials. ▪ User supply the logging credentials. ▪ System authenticate the user by going to the database to check if user data exist in the database. ▪ If user data exist in the database then the system will redirect user to the page to add system users. ▪ Administrator will remove a particular user from system. ▪ Finally, administrator will sign out.
ALTENATE FLOW(s)	▪ If administrator fail to remove user the he/she will be prompt to try again.
EXCEPTION FLOW(s)	▪ If user enter his/her own password incorrect 3 times then the system will direct to page so that he/she can recover password.

USE CASE No.	4
ACTOR(s)	Administrator
USE CASE TITLE	Update user information.
SHORT DESCRIPTION	This use case allows administrator to update other system user information.
PRE-CONDITIONS	Administrator must be logging using his/her credentials to be authenticated by the system.
POST-CONDITIONS	After successfully login, administrator will be redirected to the page with user’s system list.
INITIAL ASSUMPTIONS	▪ The system administrator has the default account ▪ In order to add other users’, system administrator will use his/her login credentials i.e. username and password and must logged in.
MAIN FLOW	▪ Administrator enter the system address to the browser ▪ System prompt user with the login page that need user to supply logging credentials. ▪ User supply the logging credentials. ▪ System authenticate the user by going to the database to check if user data exist in the database. ▪ If user data exist in the database then the system will redirect user to the page to update system users information. ▪ Administrator will update user info for particular user from system. ▪ Finally, administrator will sign out.
ALTENATE FLOW(s)	▪ If administrator fail to update user information, then he/she will be prompted to try again.
EXCEPTION FLOW(s)	▪ If administrator enter his/her own password incorrect 3 times then the system will direct to page so that he/she can recover password.

USE CASE No.	5
ACTOR(s)	Business owner
USE CASE TITLE	View information.
SHORT DESCRIPTION	This use case allows Business owner to view all information in the system.
PRE-CONDITIONS	Business owner must be logging using his/her credentials to be authenticated by the system.
POST-CONDITIONS	After successfully login, administrator will be redirected to the page with user’s system list.
INITIAL ASSUMPTIONS	▪ The system Business owner has the default account ▪ In order to add other users’, system Business owner will use his/her login credentials i.e. username and password and must logged in.
MAIN FLOW	▪ Business owner enter the system address to the browser ▪ System prompt user with the login page that need user to supply logging credentials. ▪ User supply the logging credentials. ▪ System authenticate the user by going to the database to check if user data exist in the database. ▪ If user data exist in the database then the system will redirect user to the page to update system user’s information. ▪ Business owner view information from dashboard and other related. ▪ Finally, Business owner will sign out.
ALTENATE FLOW(s)	▪ If Business owner fail to view information then he/she will be prompt to try again.
EXCEPTION FLOW(s)	▪ If Business owner enter his/her own password incorrect 3 times then the system will direct to page so that he/she can recover password.

USE CASE No.	6
ACTOR(s)	Store Keeper
USE CASE TITLE	Add inventory product
SHORT DESCRIPTION	This use case allows Store Keeper to add inventory product.
PRE-CONDITIONS	Store Keeper must be logging using his/her credentials to be authenticated by the system.
POST-CONDITIONS	After successfully login, Store Keeper will be redirected to the page with inventory form so that he/she can add product.
INITIAL ASSUMPTIONS	▪ The Store Keeper has the account created by administrator. ▪ In order to add inventory product users', Store Keeper will use his/her login credentials i.e. username and password and must logged in.
MAIN FLOW	▪ Store Keeper enter the system address to the browser ▪ System prompt user with the login page that need user to supply logging credentials. ▪ User supply the logging credentials. ▪ System authenticate the user by going to the database to check if user data exist in the database. ▪ If user data exist in the database then the system will redirect user to the page to add system users. ▪ Store Keeper will add inventory product information and register product. ▪ Finally, administrator will sign out.
ALTENATE FLOW(s)	▪ If Store Keeper fail to add inventory product then he/she will be prompted to try again.
EXCEPTION FLOW(s)	▪ If Store Keeper enter his/her own password incorrect 3 times then the system will direct to page so that he/she can recover password.

USE CASE No.	7
ACTOR(s)	Store Keeper
USE CASE TITLE	Remove inventory product.
SHORT DESCRIPTION	This use case allows Store Keeper to remove inventory product.
PRE-CONDITIONS	Store Keeper must be logging using his/her credentials to be authenticated by the system.
POST-CONDITIONS	After successfully login, Store Keeper will be redirected to the page with inventory product list.
INITIAL ASSUMPTIONS	▪ The Store Keeper has the account created by administrator ▪ In order to add other users', system administrator will use his/her login credentials i.e. username and password and must logged in.
MAIN FLOW	▪ Store Keeper enter the system address to the browser ▪ System prompt user with the login page that need user to supply logging credentials. ▪ User supply the logging credentials. ▪ System authenticate the user by going to the database to check if user data exist in the database. ▪ If user data exist in the database then the system will redirect user to the page to add system users. ▪ Store Keeper will remove a particular inventory product from system. ▪ Finally, Store Keeper will sign out.
ALTENATE FLOW(s)	▪ If Store Keeper fail to remove inventory product then he/she will be prompted to try again.
EXCEPTION FLOW(s)	▪ If Store Keeper enter his/her own password incorrect 3 times then the system will direct to page so that he/she can recover password.

USE CASE No.	8
ACTOR(s)	Store Keeper
USE CASE TITLE	Update inventory product
SHORT DESCRIPTION	This use case allows Store Keeper to update inventory product information.
PRE-CONDITIONS	Store Keeper must be logging using his/her credentials to be authenticated by the system.
POST-CONDITIONS	After successfully login, Store Keeper will be redirected to the page with inventory product list.
INITIAL ASSUMPTIONS	▪ The Store Keeper has the account created by administrator. ▪ In order to add other users', system administrator will use his/her login credentials i.e. username and password and must logged in.
MAIN FLOW	▪ Store Keeper enter the system address to the browser ▪ System prompt user with the login page that need user to supply logging credentials. ▪ User supply the logging credentials. ▪ System authenticate the user by going to the database to check if user data exist in the database. ▪ If user data exist in the database then the system will redirect user to the page to update inventory product information. ▪ Store Keeper will update inventory for particular product. ▪ Finally, administrator will sign out.
ALTENATE FLOW(s)	▪ If Store Keeper fail to update inventory product information then he/she will be prompted to try again.
EXCEPTION FLOW(s)	▪ If Store Keeper enter his/her own password incorrect 3 times then the system will direct to page so that he/she can recover password.

USE CASE No.	9
ACTOR(s)	Store Keeper
USE CASE TITLE	View Product Information.
SHORT DESCRIPTION	This use case allows Store Keeper owner to view all inventory product information in the system.
PRE-CONDITIONS	Store Keeper owner must be logging using his/her credentials to be authenticated by the system.
POST-CONDITIONS	After successfully login, Store Keeper will be redirected to the page with inventory product list.
INITIAL ASSUMPTIONS	▪ The Store Keeper has the account created by administrator. ▪ In order to add other users' system Store Keeper will use his/her login credentials i.e. username and password and must logged in.
MAIN FLOW	▪ Store Keeper enter the system address to the browser ▪ System prompt user with the login page that need user to supply logging credentials. ▪ User supply the logging credentials. ▪ System authenticate the user by going to the database to check if user data exist in the database. ▪ If user data exist in the database then the system will redirect user to the page to update system user's information. ▪ Store Keeper view inventory product information from the system. ▪ Finally, Store Keeper will sign out.
ALTENATE FLOW(s)	▪ If Store Keeper fail to view information then he/she will be prompt to try again.
EXCEPTION FLOW(s)	▪ If Store Keeper enter his/her own password incorrect 3 times then the system will direct to page so that he/she can recover password.