

A decorative graphic on the left side of the slide consisting of white and light blue lines that resemble a circuit board or a stylized tree. The lines are vertical and horizontal, with small circles at the ends, creating a complex, branching pattern.

# Inventory Management System

Fundamental Project – By Stephanie Ashdown

# Objectives

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## Overall Objectives

- Create a functional application
- Use technologies and tools learned during training
- Application to be written in Java and to interact with a managed database

## Project Specific Objectives

- Build an inventory management system (IMS)
- System should allow user interaction via the Command-Line Interface
- Full CRUD Functionality to be implemented for Items, Customers, Orders and Order Items

# Technologies Used

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- **Jira** – Project management via Scrum Board
- **Git** – Version control through main/dev/feature branching
- **GitHub** – Source code management
- **MySQL Server** – Database management
- **Java** – Back-end programming language
- **Maven** – Build tool
- **JUnit & Mockito** – Unit testing

# Planning & Management

Projects / IMS-22JulyEnable3

## Backlog

Label Type

QA

Issues without epic

- Customer Management
- Item Management
- Order Management
- User Management
- Inventory Management
- Documentation
- Testing

+ Create Epic

IMIS-74 Test OrderLineItemController TESTING DONE

IMIS-73 Test ItemDAO TESTING DONE

IMIS-72 Test OrderDAO TESTING DONE

IMIS-74 Test OrderLineItemDAO TESTING DONE

IMIS-75 Add additional tests based on coverage gaps TESTING DONE

IMIS-10 As a developer I want to know how to run the project on a development environment so that I can work on it. DOCUMENTATION IN PROGRESS

IMIS-76 Complete all sections of ReadMe DOCUMENTATION IN PROGRESS

IMIS-77 Create presentation DOCUMENTATION IN PROGRESS

IMIS-78 Create build TO DO

IMIS-79 Add .gitignore file TO DO

+ Create issue

Backlog (4 issues)

IMIS-15 As a store owner I want to set-up users on the system to prevent unauthorised access. USER MANAGEMENT TO DO

IMIS-16 As a store owner I want to assign roles to the users on the system so that only certain users can carry out some actions. USER MANAGEMENT TO DO

IMIS-22 As a store owner I want to view all users in the system so that I can see a list of workers. USER MANAGEMENT TO DO

Create sprint

Jira

IMS Project Risk Assessment

Description	Evaluation	Likelihood	Impact Level	Responsibility	Response	Control Measures	Risk Level
Sustained period of internet loss.	Not possible to update the github repository and Jira board due to lack of internet connection.	Unlikely	Moderate	Internet service provider	Continue working on the project locally committing but not pushing to github. Use mobile data to inform QA trainer. If issues persist relocate to another location with a different service provider.	Look into other internet sources either at friends or public. Make sure friends are aware that this is a possibility.	
Local machine stops functioning.	Cannot continue working on the project as laptop stops working.	Unlikely	Catastrophic	Developer	Inform the QA trainer. Work on an alternative machine cloning the repository from github.	Push commits to github regularly. Scope out possible alternative machines either from friends or shops with fast delivery.	
Problem with local machine leading to loss of data.	The local machine causes leading to the loss of recent work on the project.	Possible	Moderate	Developer	Pull from the github repository if it is further ahead than the local copy. Repeat the lost work.	Save regularly and make regular commits and push to github. Track work on Jira so it is easy to see which task were being worked on.	
Github server goes down.	Issues pushing to github as the server is down.	Possible	Moderate	Github	Continue working on the project locally and push once github resolves the issue. Keep an eye on the github status updates. Inform the QA trainer if the problem persists.	Add commit and push to github regularly.	
Jira server goes down.	Issues tracking project work due to Jira server problem.	Possible	Minor	Jira	Continue working on the project and update the Jira board once Jira is back up and running.	Consider saving a local copy of the Jira board so it is possible to track locally until Jira is back up and running.	
Illness.	Unable to continue working due to illness.	Unlikely	Catastrophic	Developer	Inform the QA trainer. Work as much as possible if the illness is mild enough to allow it. Ensure that the QA trainer has access to the work that has been achieved.	Eat and sleep well in the weeks leading up to the project.	
Failure to meet project deadline.	Project not completed in time for deadline as a result of bad planning on unexpected issues.	Unlikely	Major	Developer	Complete as much as possible in the timeframe focussing on the MVP and ensuring that the project is functional.	Plan the project properly in advance and monitor progress frequently adjusting priorities as required.	
23/08/2022 Come across an unknown error.	Work on the project gets delayed due to an error not seen before or understood	Likely	Moderate	Developer	Try to find solution via google but do not waste too much time, contact QA trainer for assistance.	Review errors from previous work in preparation. Ensure that understand how to contact QA trainer.	



Risk Assessment

# Jira

- Plotted out user stories and acceptance criteria
- Assigned user stories to epics
- Linked tasks to stories
- Estimated work using story points
- Assigned priority with MoSCoW
- Managed workload with sprints
- Updated progress using smart commits

The screenshot displays a Jira project page for 'IMS Sprint 3' with the goal to 'Finish project'. The top navigation bar includes a search bar, a user profile icon, and filters for 'Epic', 'Label', and 'Type'. The main area features a Kanban board with three columns: 'TO DO 2 ISSUES', 'IN PROGRESS 3 ISSUES', and 'DONE 10 ISSUES'. The 'TO DO' column contains 'Create build' (IMS-78) and 'Add .gitignore file' (IMS-79). The 'IN PROGRESS' column shows 'As a developer I want to know how to run the project on a development environment so that I can work on it.' (IMS-18, 5 story points) and 'Complete all sections of ReadMe' (IMS-76). The 'DONE' column lists several testing tasks like 'Test Item Class' (IMS-66), 'Test Order Class' (IMS-67), and 'Test OrderLineItem Class' (IMS-68). A detailed view of a user story is shown below the board: 'As a store worker I want to add an item to an order so that I can see which items have been purchased.' This story includes a description, acceptance criteria, and a list of linked issues, all of which are marked as 'DONE'.

Projects / IMS-22JulyEnable3

## IMS Sprint 3

Finish project

Search SA Epic Label Type

TO DO 2 ISSUES

- Create build  
IMS-78
- Add .gitignore file  
IMS-79

IN PROGRESS 3 ISSUES

- As a developer I want to know how to run the project on a development environment so that I can work on it.  
DOCUMENTATION ShouldHave  
IMS-18 5
- Complete all sections of ReadMe  
DOCUMENTATION  
IMS-76
- Create presentation

DONE 10 ISSUES

- Test Item Class  
TESTING  
IMS-66
- Test Order Class  
TESTING  
IMS-67
- Test OrderLineItem Class  
TESTING  
IMS-68

As a store worker I want to add an item to an order so that I can see which items have been purchased.

Attach Add a child issue Link issue ...

Description

Given the worker is in the IMS when they select to Add and Item to an order then they are able to select and add an item to an order.

Linked issues

relates to

IMS-50	Add OrderLineItem class definition to the domain	=	SA	DONE
IMS-51	Add OrderLineItem to MySQL	=	SA	DONE
IMS-52	Add line item attribute to order class	=	SA	DONE
IMS-53	Add add line item method to order class	=	SA	DONE
IMS-54	Add OrderLineItemDAO class	=	SA	DONE
IMS-57	Add addLineItem method to OrderController	=	SA	DONE

# Risk Assessment

- Identified possible risks
- Assigned risk level using matrix
- Planned responses and control measures
- Monitored and updated as appropriate throughout

IMS Project Risk Assessment

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Local machine stops functioning.	Cannot continue working on the project as laptop stops working.	Unlikely	Catastrophic	Developer	Inform the QA trainer. Work on an alternative machine cloning the repository from github.	Push commits to github regularly. Scope out possible alternative machines either from friends or shops with fast delivery.	Orange
Problem with local machine leading to loss of data.	The local machine caches leading to the loss of recent work on the project.	Possible	Moderate	Developer	Pull from the github repository if it is further ahead than the local copy. Repeat the lost work.	Save regularly and make regular commits and pushes to github. Track work on Jira so it is easy to see which task were being worked on.	Yellow
Github server goes down.	Issues pushing to github as the server is down.	Possible	Moderate	Github	Continue working on the project locally and push once github resolves the issue. Keep an eye on the github status updates. Inform the QA trainer if the problem persists.	Add commit and push to github regularly.	Yellow
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23/08/2022 Come across an unknown error.	Work on the project gets delayed due to an error not seen before or understood	Likely	Moderate	Developer	Try to find solution via google but do not waste too much time, contact QA trainer for assistance.	Review errors from previous work in preparation. Ensure that understand how to contact QA trainer.	Yellow

		Impact				
		Negligible	Minor	Moderate	Major	Catastrophic
Probability	Very Likely	Low-Medium	Medium	Medium-High	High	High
	Likely	Low-Medium	Low-Medium	Medium	Medium-High	High
	Possible	Low	Low-Medium	Medium	Medium-High	Medium-High
	Unlikely	Low	Low-Medium	Low-Medium	Medium	Medium-High
	Very Unlikely	Low	Low	Low-Medium	Medium	Medium

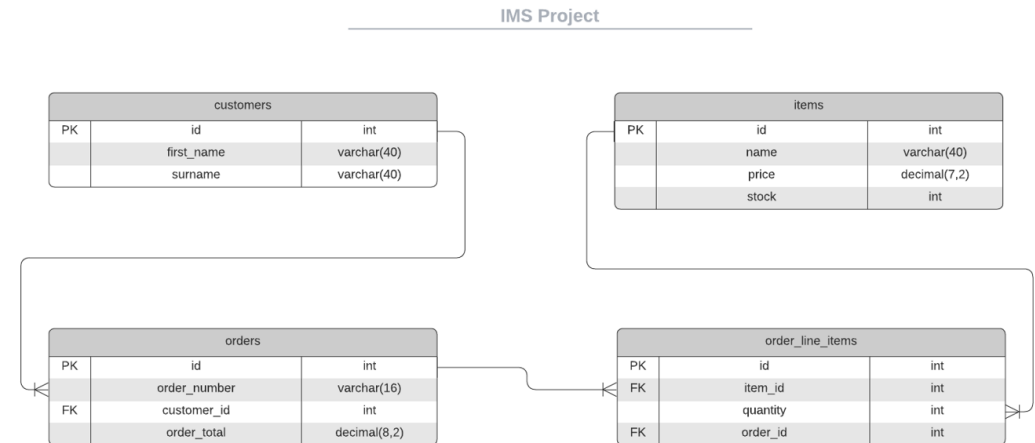
# Version Control

- Project updates tracked using git
- Work carried out on different branches
- Branches merged into dev branch once completed satisfactorily
- Main branch kept clean for build commit

Your branches				
documentation	Updated 2 hours ago by Stephanie-Ash	0   101	New pull request	
dev	Updated 16 hours ago by Stephanie-Ashdown	0   100	New pull request	
testing	Updated 17 hours ago by Stephanie-Ash	0   99	#12 Merged	
refactor-code	Updated 2 days ago by Stephanie-Ash	0   82	#11 Merged	
feature-update-inventory	Updated 2 days ago by Stephanie-Ash	0   71	#10 Merged	
feature-calculate-order-total	Updated 2 days ago by Stephanie-Ash	0   68	#9 Merged	
feature-delete-order-items	Updated 2 days ago by Stephanie-Ash	0   60	#8 Merged	
feature-add-order-items	Updated 3 days ago by Stephanie-Ash	0   52	#7 Merged	
feature-order-full-crud	Updated 3 days ago by Stephanie-Ash	0   37	#6 Merged	
feature-item-full-crud	Updated 3 days ago by Stephanie-Ash	0   28	#5 Merged	
feature-order-creation	Updated 3 days ago by Stephanie-Ash	0   19	#4 Merged	
feature-order-model	Updated 3 days ago by Stephanie-Ash	0   13	#3 Merged	
feature-create-item	Updated 3 days ago by Stephanie-Ash	0   10	#2 Merged	
feature-item-model	Updated 4 days ago by Stephanie-Ash	0   3	#1 Merged	

# Database Design

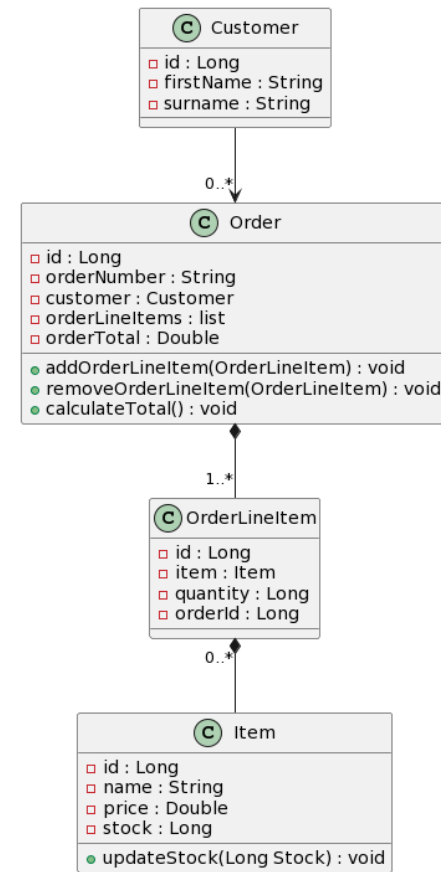
- Database designed around four tables
- Customer table for customer information
- Item table for item details
- Order table for order information
- Order line item table for order items





# Class Design

- Classes created for the four database tables
- User interaction with each domain entity controlled by controllers
- Database actions controlled by DAO classes



# Demo

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- A demonstration of some of the user stories will now be carried out in the project itself
- This will focus on the main CRUD functionality

# Unit Testing

- Tests created for each of the domain entities
- Tests created for the controller classes
  - Mockito used for these tests
- Tests created for the DAO classes
- Coverage of main folder currently 78%
- Main lack of coverage in IMS and Utils
- Work continuing to improve coverage

Element	Coverage	Covered Instructions	Missed Instructions	Total Instructions
IMS-22JulyEnable3	88.6 %	5,752	743	6,495
src/main/java	78.0 %	2,616	739	3,355
> com.qa.ims.persistence.dao	78.5 %	989	271	1,260
> com.qa.ims	0.0 %	0	213	213
> com.qa.ims.controller	89.0 %	723	89	812
> com.qa.ims.utils	65.7 %	163	85	248
> com.qa.ims.persistence.domain	90.5 %	741	78	819
> com.qa.ims.exceptions	0.0 %	0	3	3
src/test/java	99.9 %	3,136	4	3,140

# Conclusions

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## What Went Well

- The MVP was met
- Initial planning of user stories
- Version control and use of branching

## What Could Have Been Better

- Jira organisation and story point estimation
- More screenshots of mid stages
- Functionality implementation over complicated particularly in order controller
- More focus on SOLID principles and best practice