

**BSc (Hons) in Information Technology**  
**Specializing in Software Engineering**  
**Year 3 Semester 2 – 2022 June**  
**SE3070 – Case Studies in Software Engineering**

## **Procurement for Construction Industry**

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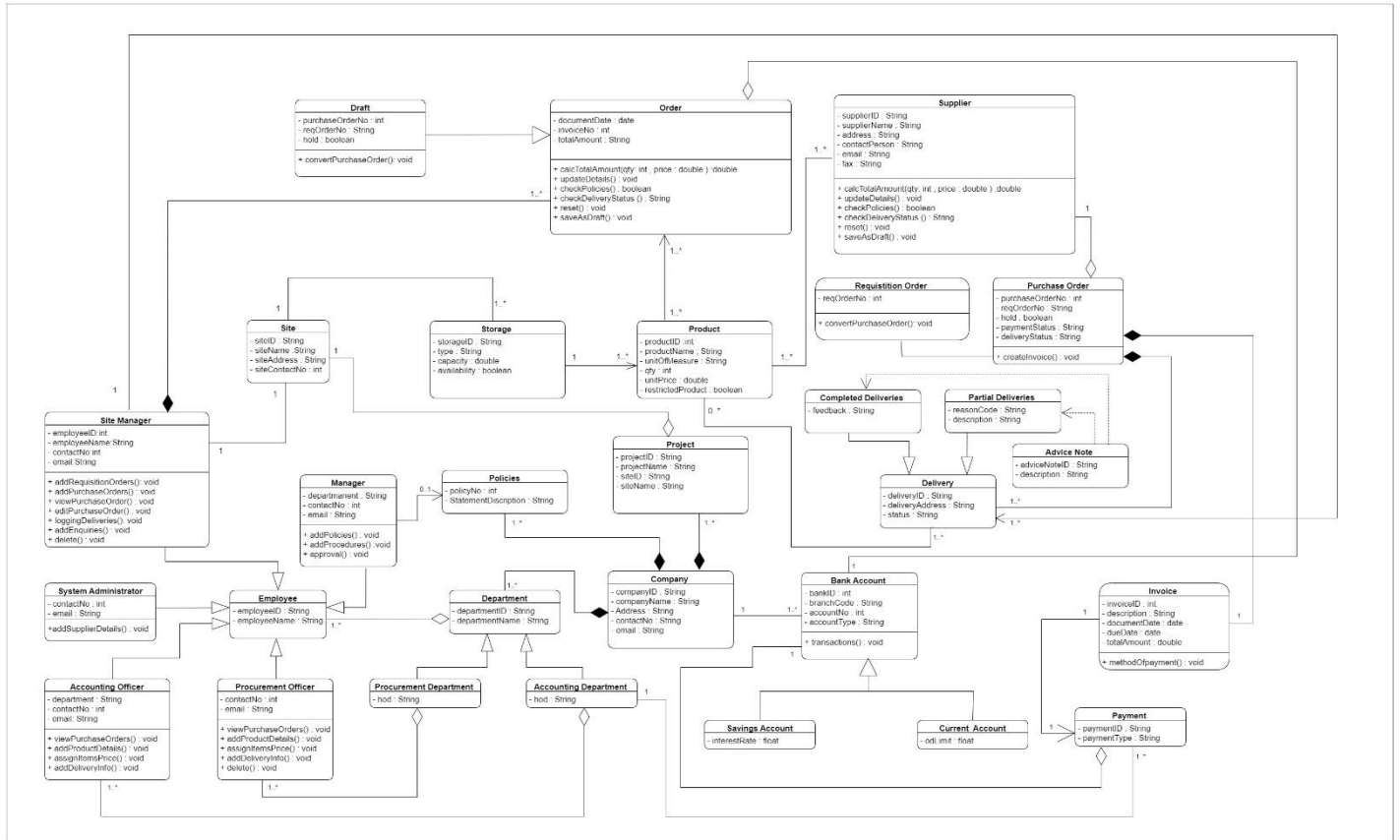
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## Assumptions

- The approval of the manager is given when the order is under a pre declared cost limit.
- Consider supervisor is a person work under management team and has the responsibility on approve purchase orders.
- We assumed that each project had a single site that is relevant to it.
- We assumed that a supplier would only bring the delivery advice note for the products they actually delivered when delivering an incomplete order, rest of order will deliver with a new delivery advice note.
- We assumed that the provider could fulfill the order at any moment without rejecting it.
- We assumed that a one order has only one supplier.
- We assume that the system administrator will be adding and maintaining the supplier details and company information.

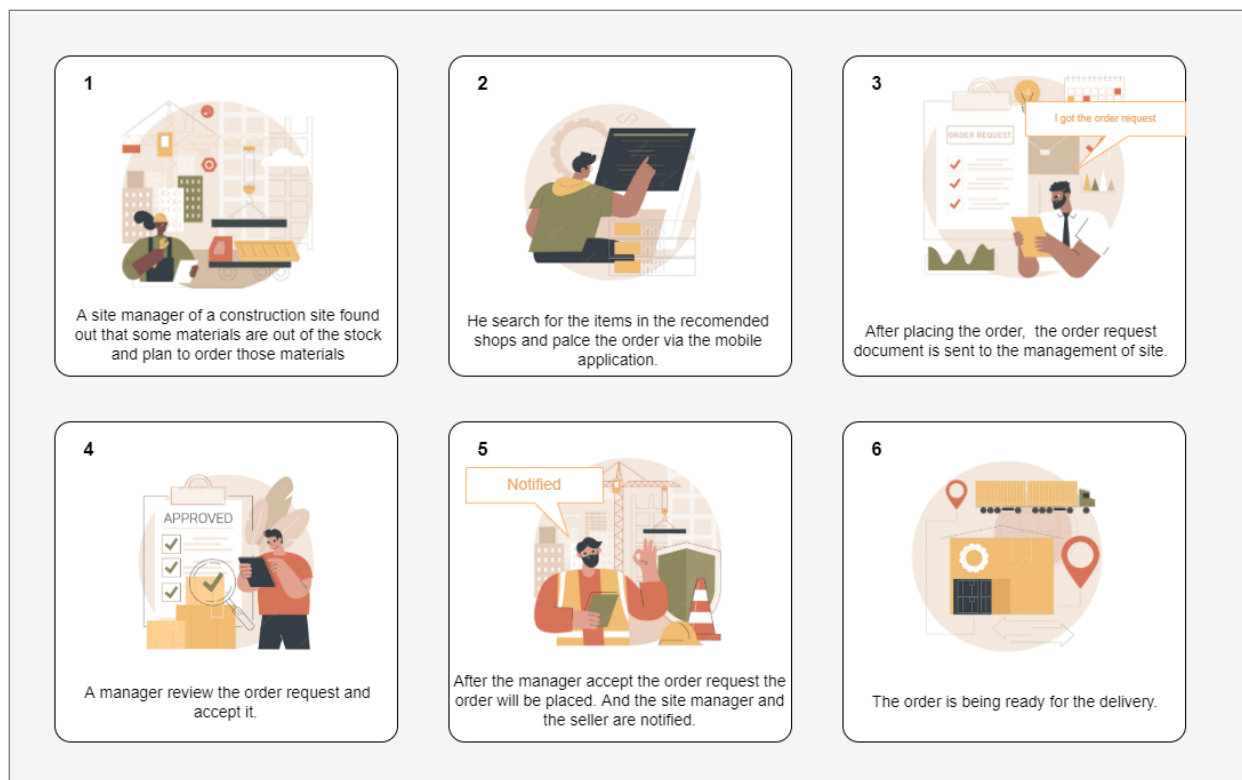


## Class Diagram

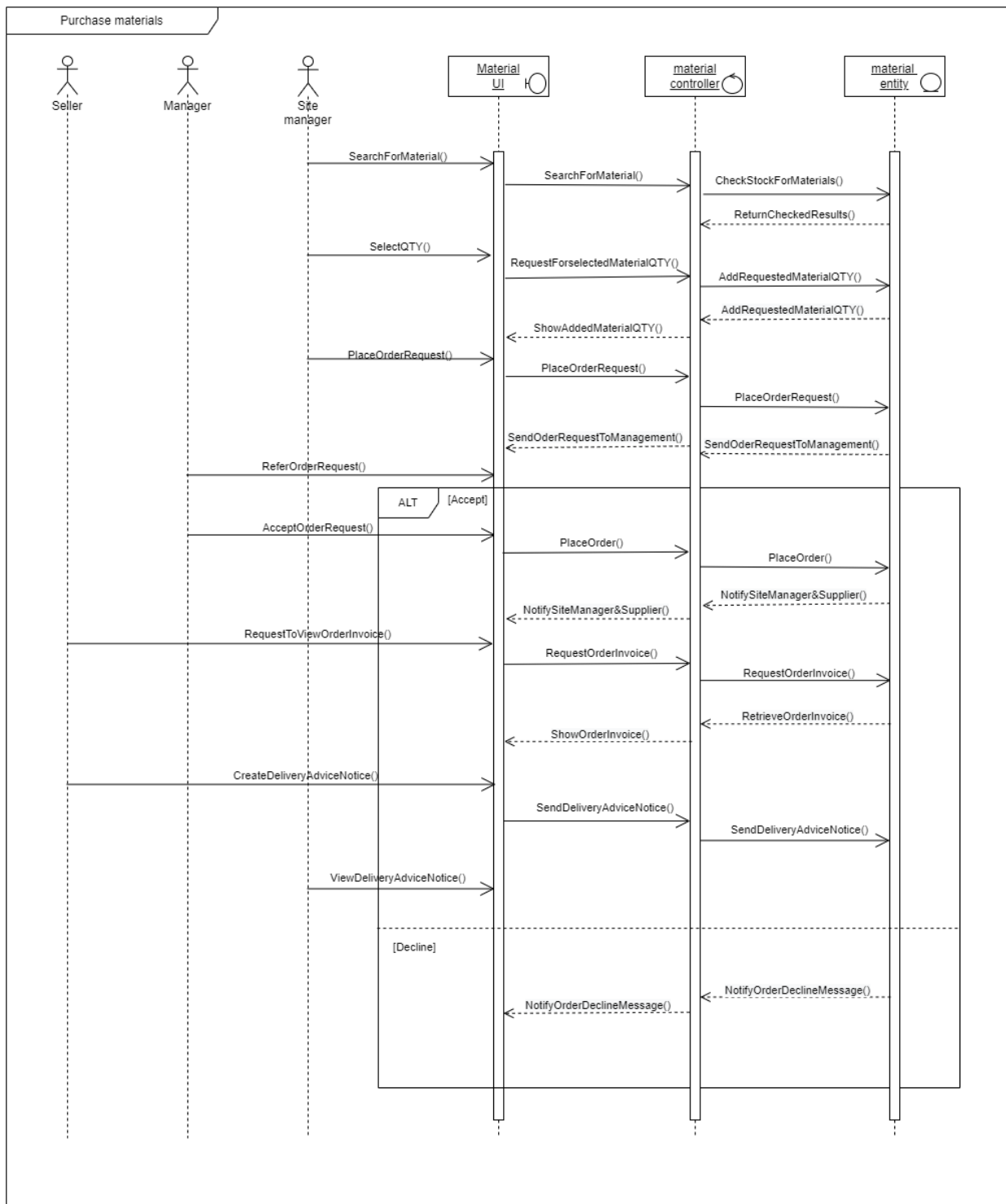


## Scenario 01 – Purchase an order

After checking the site, the site manager found the materials which are out of the stock. Then he searches for those materials in the recommended seller's stocks. Then when he found the materials are in stock, he selects the needed quantity of the particular material via the mobile app. After displaying the selected quantity, the order request is being placed. The placed order request then send to the management. The manage then refer the order request. If the manager accepts the request, the order for the particular materials is being placed. Then the site manager and the supplier are notifying with the order details. The seller then requests to view the created order invoice. After viewing the order invoice, the seller create a Delivery Advice Notice. Seller sends the Delivery Advice Notice with the delivery. It is then viewed by the site manager and use as an acceptance note for the order. If the order request is not accepted by the manager, the order will be marked as a declined order and a message will be sent.



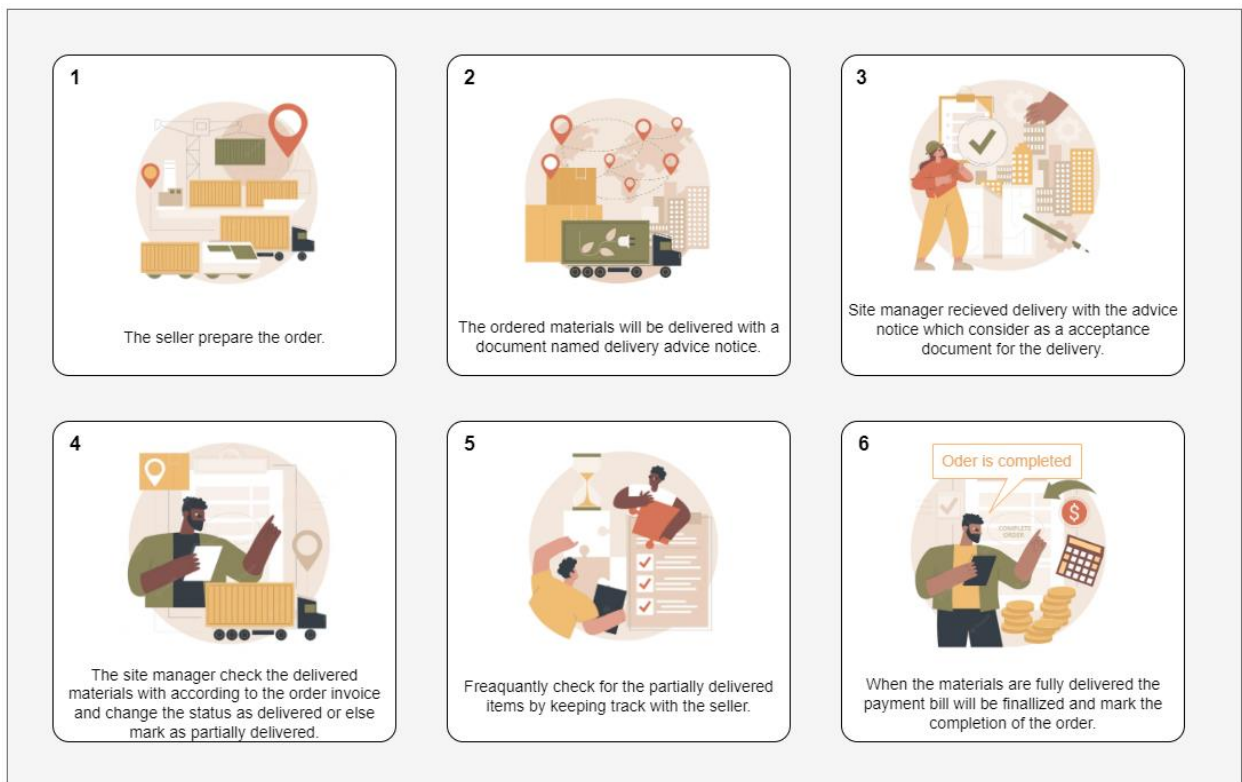
Story board – 01



Sequence Diagram – 01

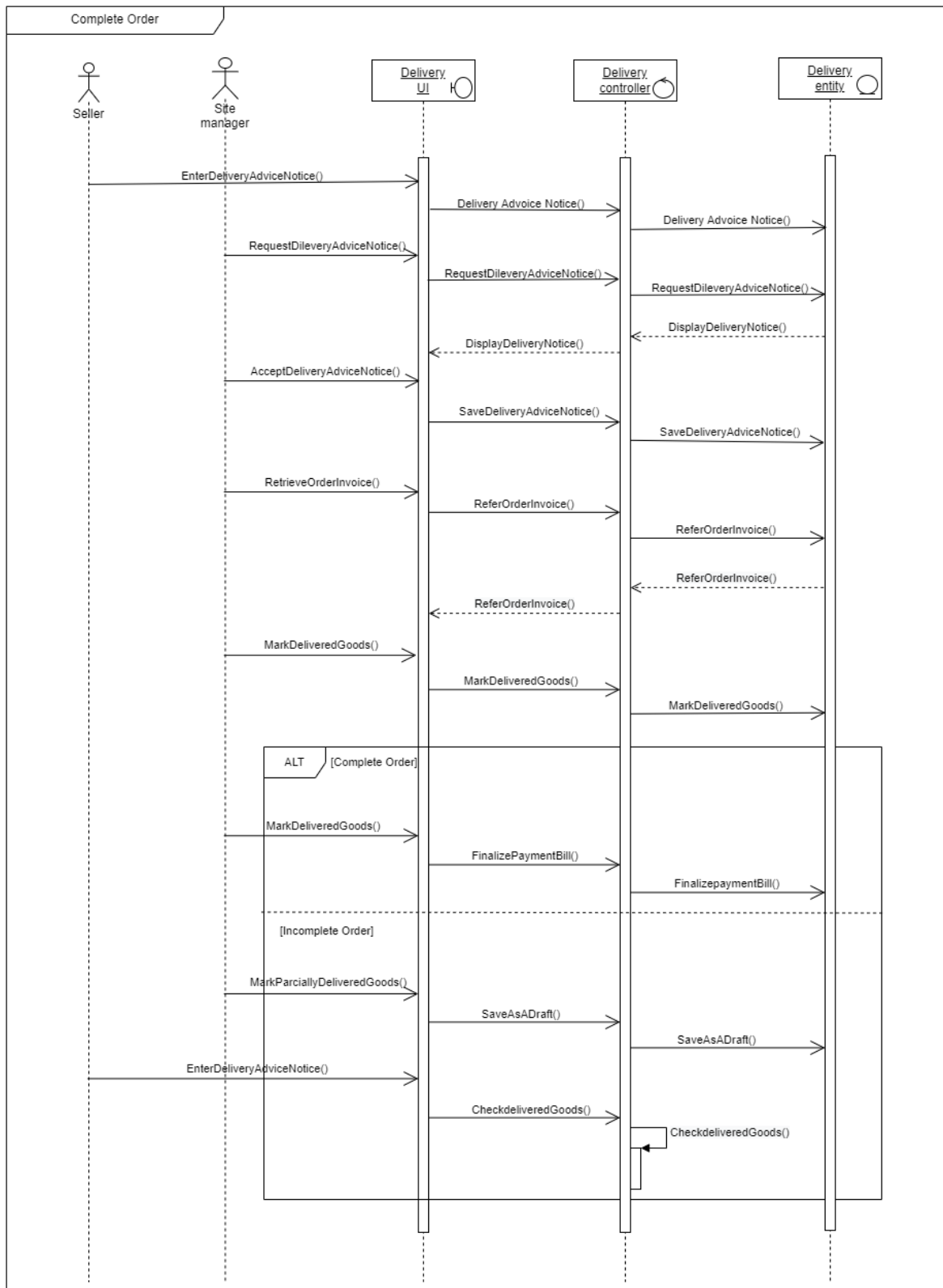
## Scenario 02 – Complete an order

The seller sends the delivery advice notice with the delivery of the goods. The site manager request for the delivery advice notice. After referring the delivery advice notice the site manager accept the delivery advice notice and save the notice. Site manager then retrieve the order invoice and refer the order invoice. Then mark the delivered goods according to the invoice. If the goods are fully delivered or the order is completed the payment bill will be finalized. If the order is partially delivered or incomplete the details will be saved as a draft. The partially delivered items are checked frequently until the order complete.



### Story Board – 02





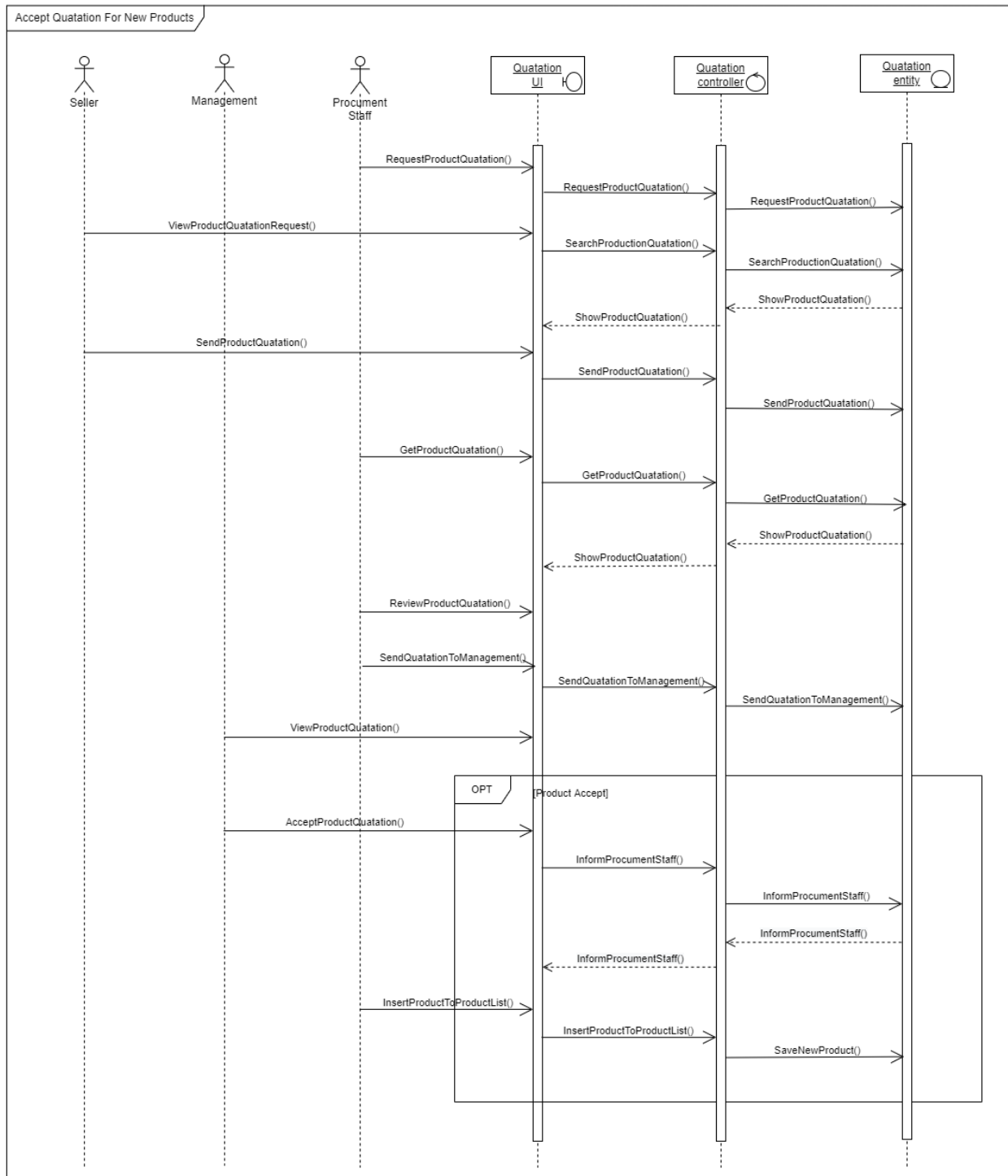
Sequence diagram – 02

### Scenario 03 – Accept quotation for new products

The procurement staff request for the product quotation. Seller gets the request and search for the product quotation. After finding the quotation it is being sent to the procurement manager. The procurement manager gets the quotation and review the product quotation. After viewing the quotation, it is being sent to the management by the procurement staff. Then the management view the product quotation. If the manager accepts the quotation the procurement staff is being informed. Then the products will be added and saved to the accepted product list with the particular seller details.



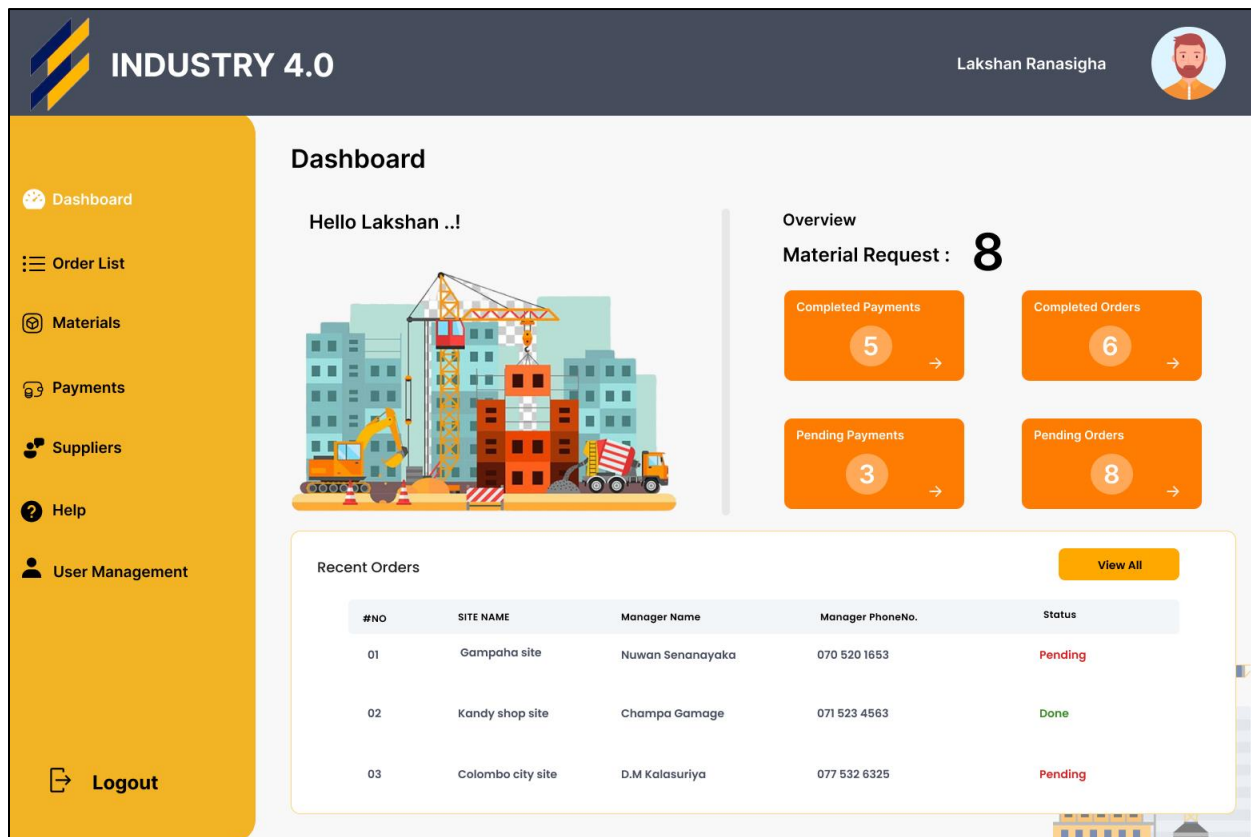
Story Board – 03




Sequence diagram – 03


## Wireframes

### High fidelity Wireframes for Website



Wireframe - 01


**INDUSTRY 4.0**

Lakshan Ranasigha


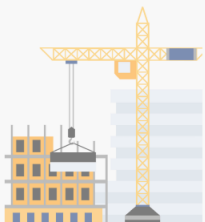
- Dashboard
- Order List
- Materials
- Payments
- Suppliers
- Help
- User Management
- Logout

### Order List


Pending Orders


Approved Orders
Declined Orders
Placed Orders

#NO	SITE NAME	SITE MANAGER	ORDER ITEMS	DELIVERY DATE	BANK ACCOUNT NO	TOTAL PRICE (Rs.)		
01	Gampaha site	Nuwan	Holcim Cement	2022.08.15	1020 2013 256	Rs.120,000.00	✓	✗
02	Kandy shop site	Champa	Lanaka Providers	2022.09.07	123 526 485 9	Rs.150,200.00	✓	✗
03	Colombo city site	Kulasuriya	Portlat Cement	2022.08.02	152 4532 256	Rs.75,000.00	✓	✗
04	Kandy New highway road	Naduni	Lanaka Providers	2022.06.12	5213 5698 56 6	Rs.300,000.00	✓	✗



Wireframe - 02


**INDUSTRY 4.0**


Lakshan Ranasigha


- Dashboard
- Order List
- Materials**
- Payments
- Suppliers
- Help
- User Management


### Materials


Available Products
+ Add Materials


#NO		PRODUCTS	DISCRIPTION	QUANTITY	NET PRICE	SUPPLIER	
01		Cement	Holcim Cement	100	Rs.7500000.00	Holcim (Pvt) Ltd	
02		Sand cubes	Lanaka Providers	50	Rs.500000.00	Holcim (Pvt) Ltd	
03		Cement	Portlat Cement	200	Rs.3500000.00	Holcim (Pvt) Ltd	
04		Rocks	Lanaka Providers	60	Rs.7800000.00	Holcim (Pvt) Ltd	





Wireframe - 03


 **INDUSTRY 4.0**


Lakshan Ranasigha


 Dashboard


 Order List


 Materials

 Payments

 Suppliers

 Help

 User Management

 Logout

### Materials

Add Products

View Product

Product Name

quantity

Product Discription


Net Price (Rs.)


Supplier

--Select--


Reset


Add Product


  
Drag and drop a file here or click





Wireframe - 04


 **INDUSTRY 4.0**


Lakshan Ranasigha


 Dashboard


 Order List


 Materials

 Payments

 Suppliers

 Help

 User Management

 Logout

### Suppliers

Add Supplier


Supplier Name

Supplier Address

Contact Name

Phone Number

E-mail



Reset


Add Supplier


View All Suppliers

Wireframe - 05



## Low fidelity Wireframes for Website

 **INDUSTRY 4.0**

Lakshan Ranasigha

☒ Dashboard

☒ Order List

☒ Materials

☒ Payments

☒ Suppliers

☒ Help

☒ User Management

☒ Logout

### Suppliers

Update Supplier

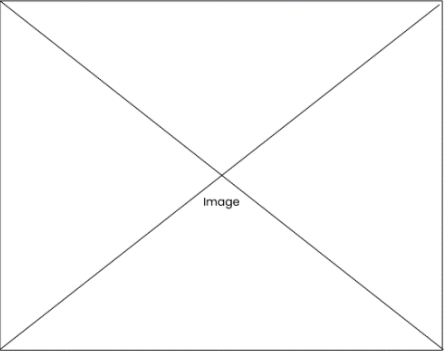
Supplier Name

Supplier Address

Contact Name

Phone Number



E-mail




Wireframe - 06

## High fidelity Wireframes for Mobile Application

10 : 30



 **INDUSTRY 4.0**

**← Requisition Order**

Item Selection  
Cement

Quantity  
10

Price  
Rs.1,200.00

Discription  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Add New Item

Site Name  
Kandy Highway Road

Site Address  
45 New Avenue, Kandy.

Supplier  
Holicem Lanka Ptv Limited

Delivery Date  
08/11/2022

Total  
Rs. 120,000.00

Bank Account  
BOC - 8956 5631



Note  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX


Add Order


Reset


Draft

Wireframe - 07

10 : 30  


 **INDUSTRY 4.0**

 **Tracking Delivery**

**#1. Rought Sand** 

Purchased quantity : **03**

Recieved quantity : **03**

**#2. Holcim Cement 50 Kg** 

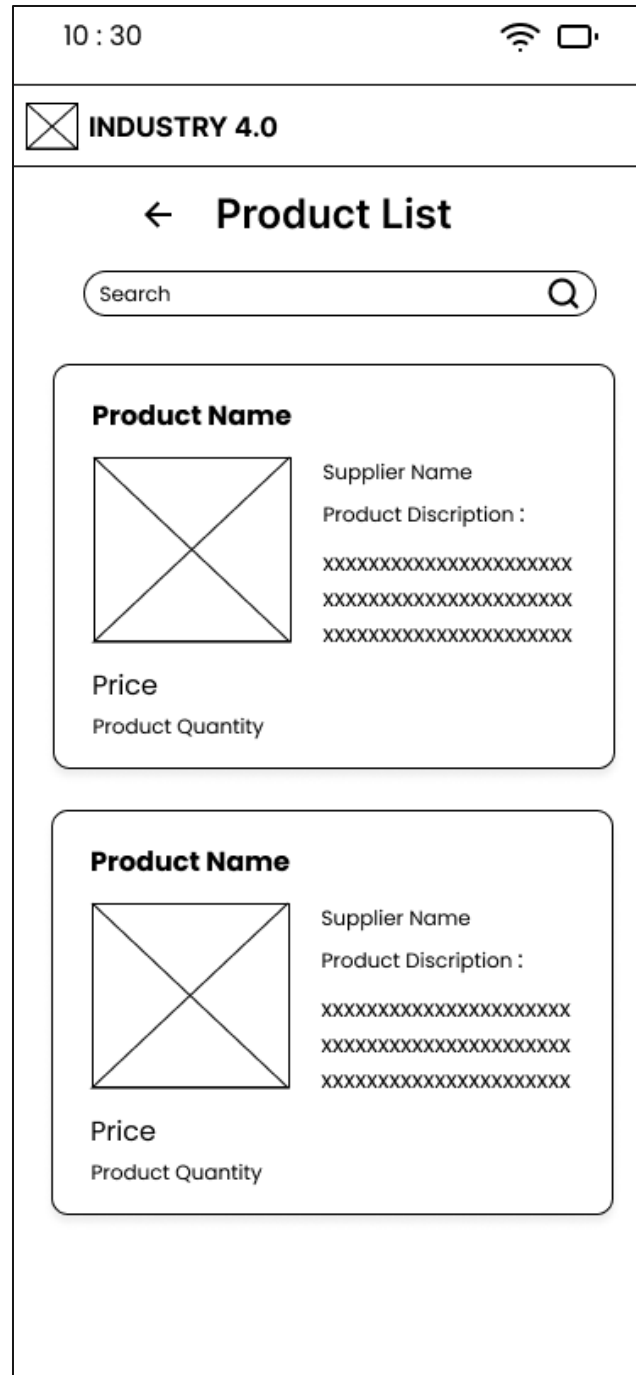
Purchased quantity : **20**

Recieved quantity : **01**

\*\*Enter recieved item quantity and click update icon.

Wireframe - 08

## Low fidelity Wireframes for Mobile Application



Wireframe - 09

## Contribution

Student ID	Name	Contribution
IT20004118	Bandara G.K.A.H	100% contribution
IT20070458	Wijewardena O.K	100% contribution
IT20150266	Basnayaka A.I	100% contribution
IT20142650	Epitakaduwa E.K.G.D	100% contribution