Department of Information Systems

Systems Analysis (INF2009F)

USER REQUIREMENTS SPECIFICATION:

Poppel

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TEAM MEMBERS

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Declaration

1. We know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.
2. This User Requirements Specification is our own work.
3. We have not allowed, and will not allow, anyone to copy our work with the intention of passing it off as their own work.

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1. BACKGROUND

1.1. Business overview

Poppel is a soft drink and confectionary manufacturer and importer located in Atlantis, Western Cape. The company is relatively small at present, employing approximately 50 employees and has a product range of about 300 products in over 40 different brands. The company was established in 2003 by Angus McClaren and Bertus van Heerden. Angus identified an opportunity in the market to bring back confectionary that was well-liked and popular during his childhood. After obtaining sufficient funding he and his business partner, Bertus, embarked on manufacturing confectionary. Over the last 3 years, they purchased a soft drink manufacturing company and signed a contract to produce a range of branded products for one of the major retail chains - both which played a significant role in substantial growth for the company. One of the objectives of the Operations Management team is to either purchase or establish extra manufacturing, warehousing and bottling capacity in Gauteng. However, the main goal of the company is to improve and computerise the complex, manual and labour intensive internal systems they have at present, as well as to streamline and upgrade their existing processes to achieve further growth in the company.

1.2. Project definition statement

The preferred solution comprises the development of a custom-built solution which supports all modes of ordering. The order processing system will include the order entry, picking and dispatch processes together with the catalogue and customer maintenance subsystems. The objective is to improve the efficiency of the current ordering process and catalogue. The custom-built solution improves the efficiency of the current catalogue and ordering system by updating the catalogue automatically for price fluctuations, stock levels, product list, introducing online/direct EFT payment options and reducing the different ordering methods to just online. This will increase sales and ordering process efficiency by an estimated 20% and 25% respectively in 1 year, and by an estimated 10% per year thereafter.

In Scope:

- Maintain Customer Details
- Maintain Catalogue Details

- Create Customer Order (including checking stock availability, checking customer credit status and handling payments)
- Change or Cancel Existing Orders and Processing Returns
- Enquire on the status of current orders
- Generate monthly Sales Analysis Report
- Generate Order Picking Lists
- Record Order Fulfilment and Invoice Generation
- Schedule Delivery Routes
- Record Delivery Status

Out of Scope

- Maintain Inventory (STOCKMAN package)
- Maintain Debtors Accounts (SWAT package)
- Customer discounts (to be implemented later)

1.3. Work method followed

In this project, the Waterfall Life Cycle (traditional life cycle) had been followed as the systems development methodology where each phase produces deliverables needed for the next phase. It consists of the following phases: project initiation, analysis, design, construction, testing and implementation. The Waterfall Life Cycle was used as project progress can be evaluated at the end of every phase, outcomes of each phase are pre-defined and it provides a high level of management control. A Business Case has been produced for the project initiation phase and the User Requirements Specification for the analysis phase.

The steps followed to obtain user's requirements:

1. Background reading and review of existing reports and documentation to understand the current processes and systems at Poppel.

2. Interviewing employees at Poppel to determine user requirements, organisational objectives and staff roles (detailed notes taken).

3. Interviewing customers to determine user requirements (detailed notes taken).

6. Interviewing unsatisfied customers about current ordering system issues and inefficiencies (detailed notes taken).

3. Observation at Poppel during on a regular business day to obtain first-hand experience of how the current processes and systems operate.

4. Online questionnaire for employees and customers which is designed to reach large customer base in distributed locations and employees that are remote.

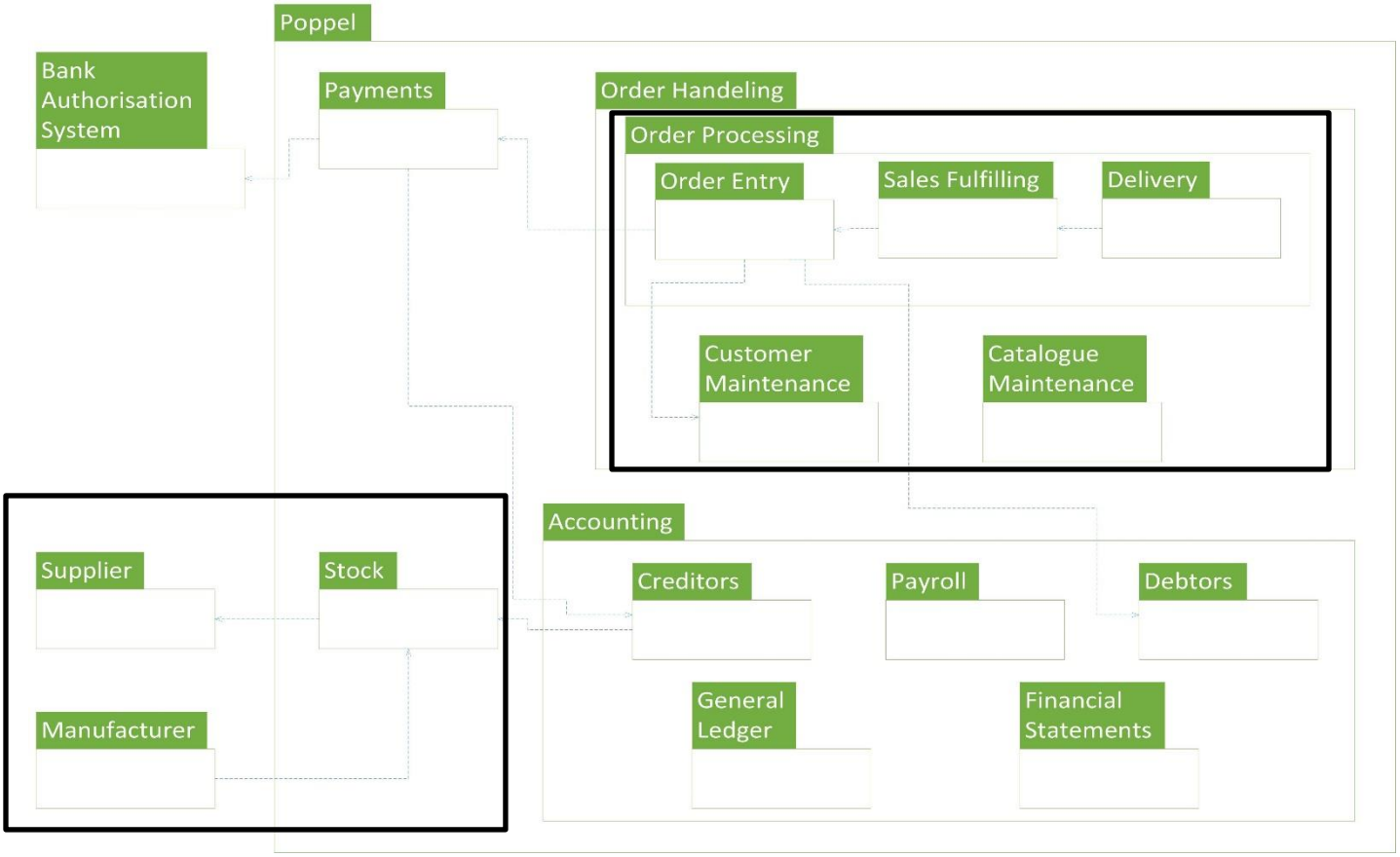
5. Joint Application Development (JAD) with all important stakeholders present to find consensus across user community.

7. Meeting and collaboration with Poppel senior management to find a common vision for the project and what is required.

9. Meeting and collaboration with accountants/auditors help understand and design systems controls.

2. USER REQUIREMENTS

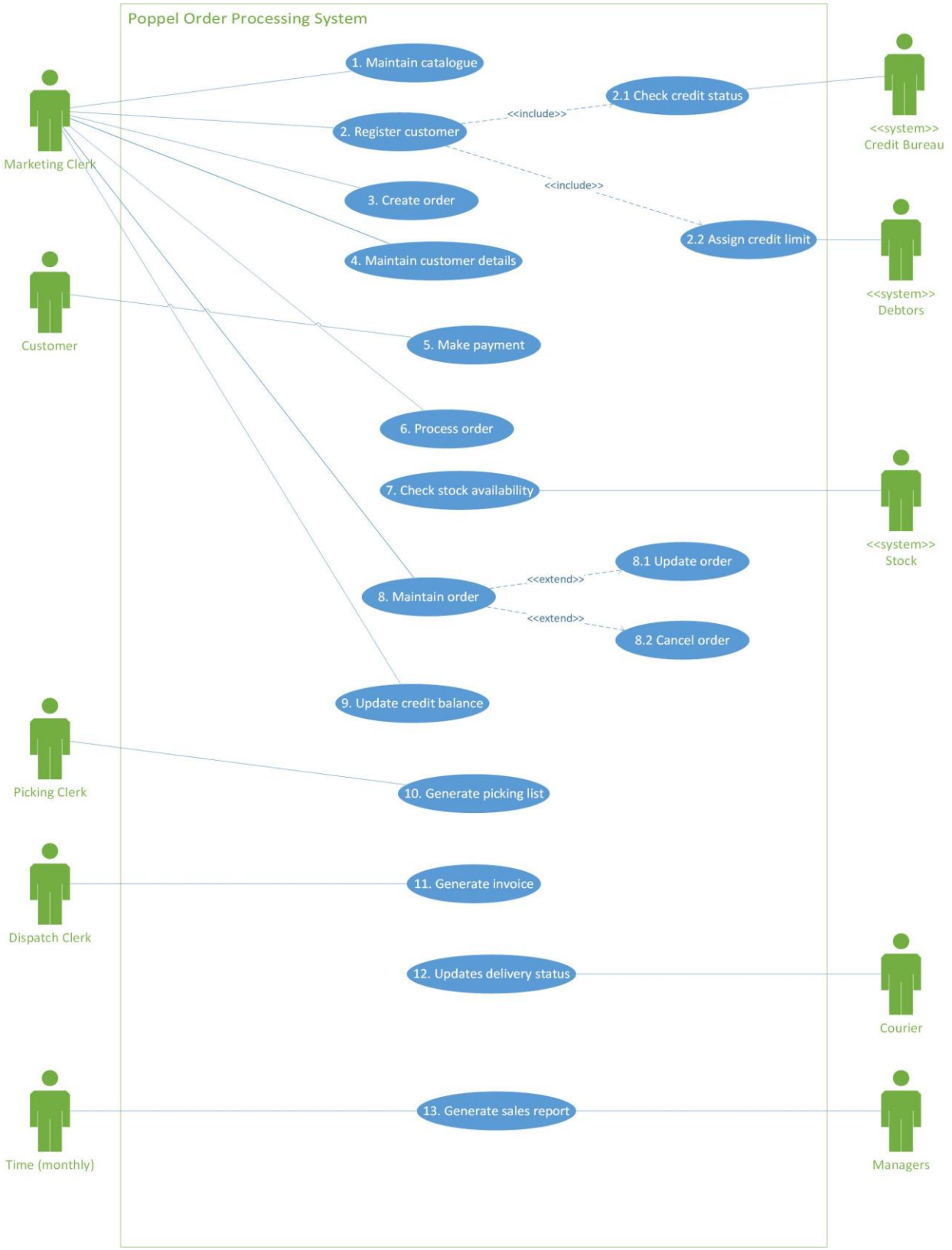
2.1. Overview



Actor Table		
Actor Role	Level	Description
Customer	Primary	Phones Poppel to place an order.
Marketing Clerk	Primary	Interacts with the Customer and the System. Captures the Customer details, processes the order and informs the Customer of any changes made to the order.
Picking Clerk	Primary	Generates a picking list from a confirmed order. Picks the items from the warehouse.
Credit Bureau	Secondary	Checks the Customer's credit status and informs the Marketing Clerk of the status.
Debtors	Secondary	Checks the Customer's credit status and if eligible, assigns the Customer a credit limit.
Stock	Secondary	System functionality. Checks the availability of the stock.
Dispatch Clerk	Primary	Receives the packed items and generates an invoice before sending the packaged order to the Courier.
Courier	Secondary	An outsourced company that receives the items from the Dispatch Clerk and delivers the packages to the Customers.
Time (monthly)	Primary	Generates a monthly sales report for the managers so that they can track the performance.
Managers	Secondary	Receives the monthly sales report to review the sales trend.

Base Use Case			
ID	Actor	Name	Priority
1	Marketing Clerk	Maintain catalogue	High
2	Marketing Clerk	Register customer	High
3	Marketing Clerk	Create order	High
4	Marketing Clerk	Maintain details	Medium
5	Customer	Makes payment	High
6	Marketing Clerk	Process order	High
7	Stock	Check stock availability	High
8	Marketing Clerk	Maintains order	High
9	Marketing Clerk	Updates credit balance	High
10	Picking Clerk	Generate picking list	High
11	Dispatch Clerk	Generate invoice	High
12	Courier	Updates delivery status	Medium
13	Time (monthly)	Generate sales report	Medium

2.2. Use Case Diagram



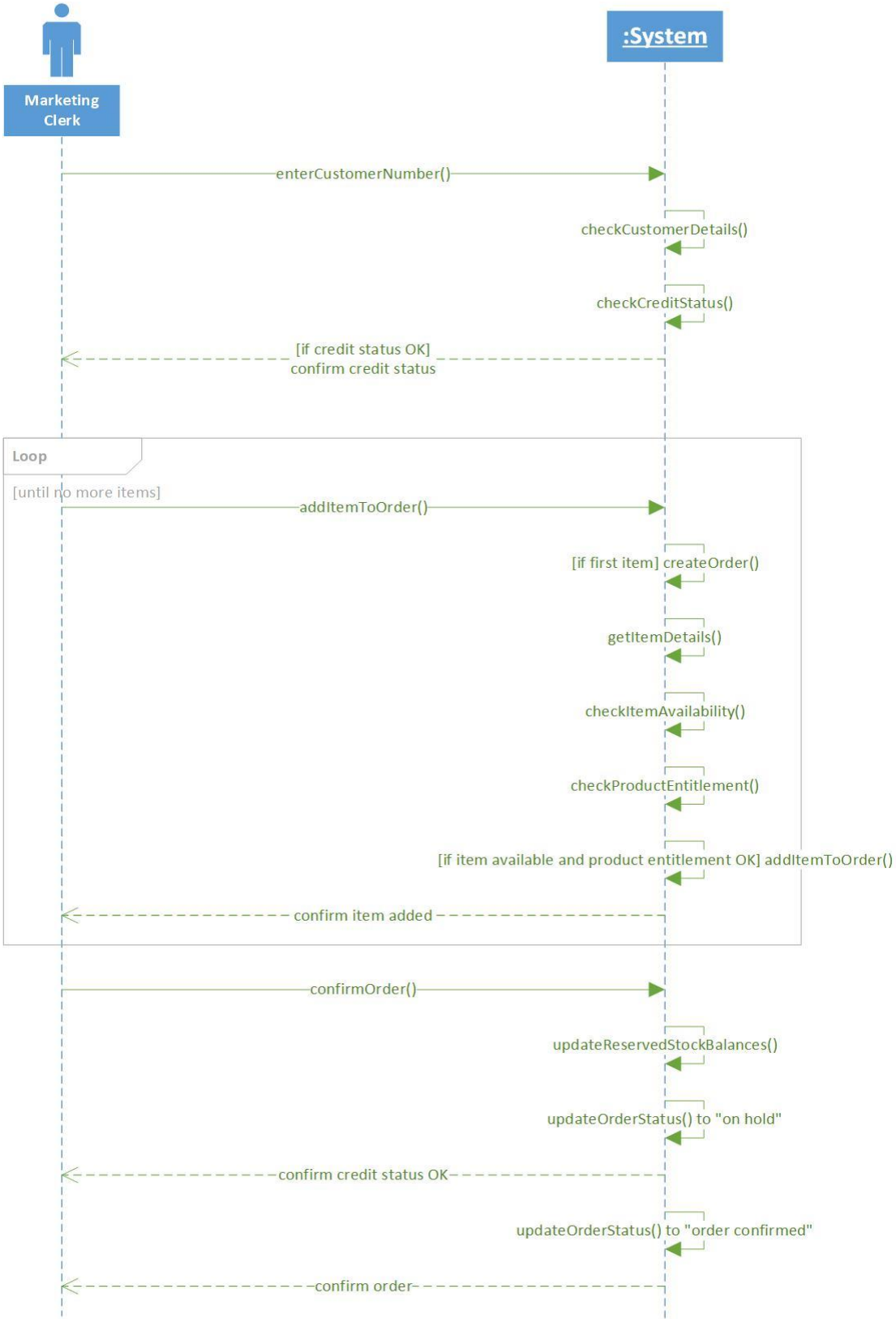
2.3. **Use Case Narrative**

Use case:	Phone-in Order	**ID:**	3129	**Level:**	High
Actors:	1. Marketing clerk				
Stakeholders and Interests:	1. Customer 2. Picking clerk 3. Dispatch clerk 4. Courier				
Brief Description:	A customer calls the business and places an order with a marketing clerk who captures the customer details and order into the system.				
Preconditions:	1. Customer must be registered 2. Customer must be credit approved				
Postconditions:	1. Stock levels must be updated 2. Customer must sign for delivery 3. Delivery status must be updated 4. Customer account balance must be updated				
Related Use Cases:	Include:	1. Check stock availability 2. Check product entitlement			
	Exclude:	1. Check credit balance 2. Maintain customer order 3. Maintain returns			

Typical Course of Events			
Actor Action		**System Response**	
1	Customer phones in with order		
2	Marketing clerk verifies customer details	3	Checks customer details and credit status *<<extend: check credit balance>>*
4	Marketing clerk processes order	5	*<<include: check stock availability>>* and *<<include: check product entitlement>>*
		6	Add item to order
7	Marketing clerk confirms order *<<extend: maintain customer order>>*		
8	Marketing clerk confirms payment details	9	Confirms order
10	Picking clerk generates picking list		
11	Dispatch clerk generates invoice		
12	Courier updates delivery status	13	Updates order status
14	Marketing clerk maintains returns	15	Updates stock level and order

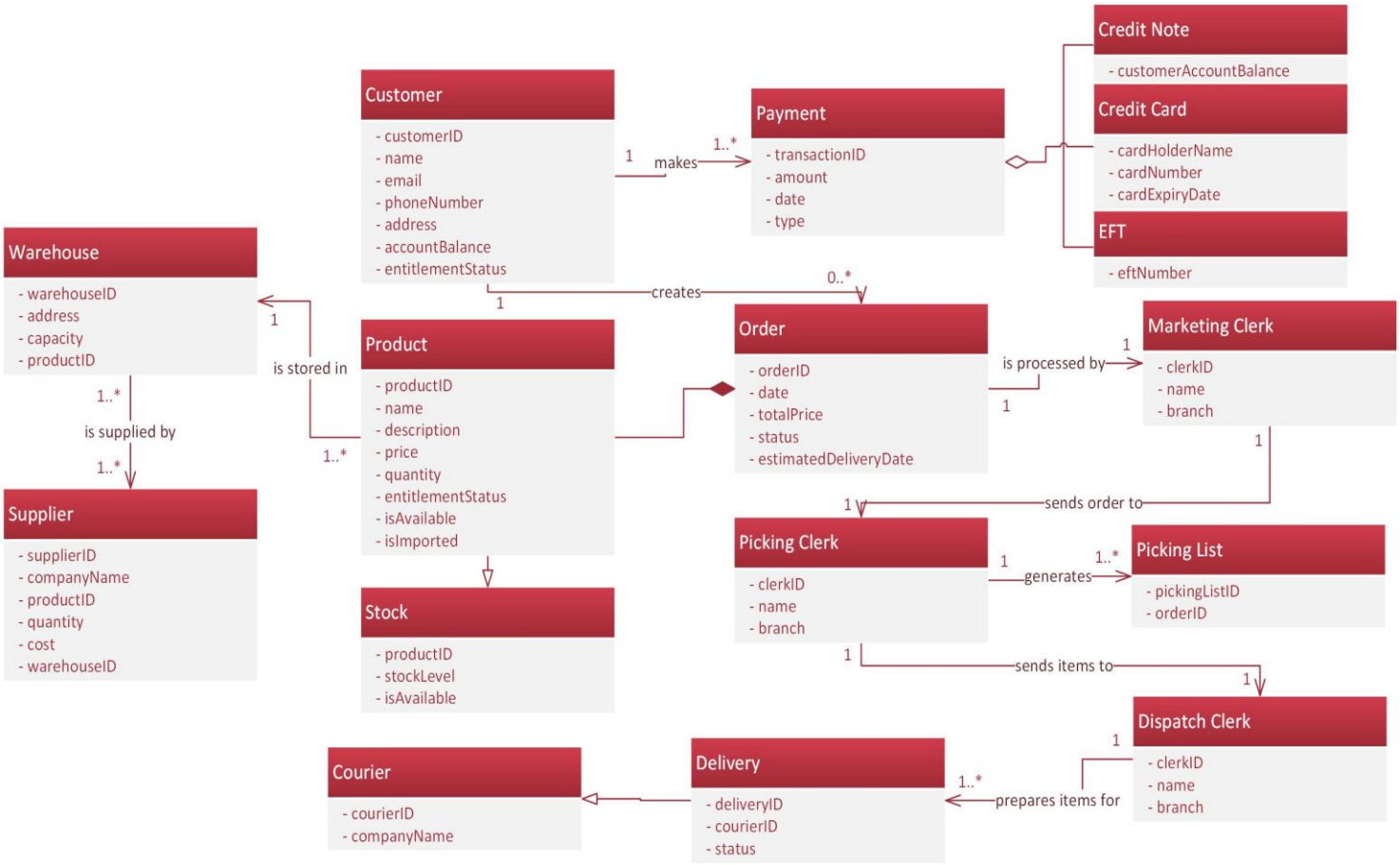
Exception/Alternative Course of Events			
Actor Action		**System Response**	
2a)	Customer is not registered 1. Marketing clerk captures customer details	2a)	2. Registers customer
3a)	Customer does not qualify for credit 1. Request customer to make partial or full payment 3. Return to step 4 Else, terminate use case	3a)	2. Update customer credit status
5a)	Item is unavailable 2. Phone customer with substitute 3. If customer accepts, return to step 6 Else, terminate use case	5a)	1. Suggests substitute 4. If customer accepts: Update order Update stock level
5b)	Customer is not entitled to product 2. Phone customer with substitute 3. If customer accepts, return to step 6 Else, terminate use case	5b)	1. Suggests substitute 4. If customer accepts Update order Update stock level

2.4. Systems Sequence Diagram



3. OBJECTS, RELATIONSHIPS AND BEHAVIOUR

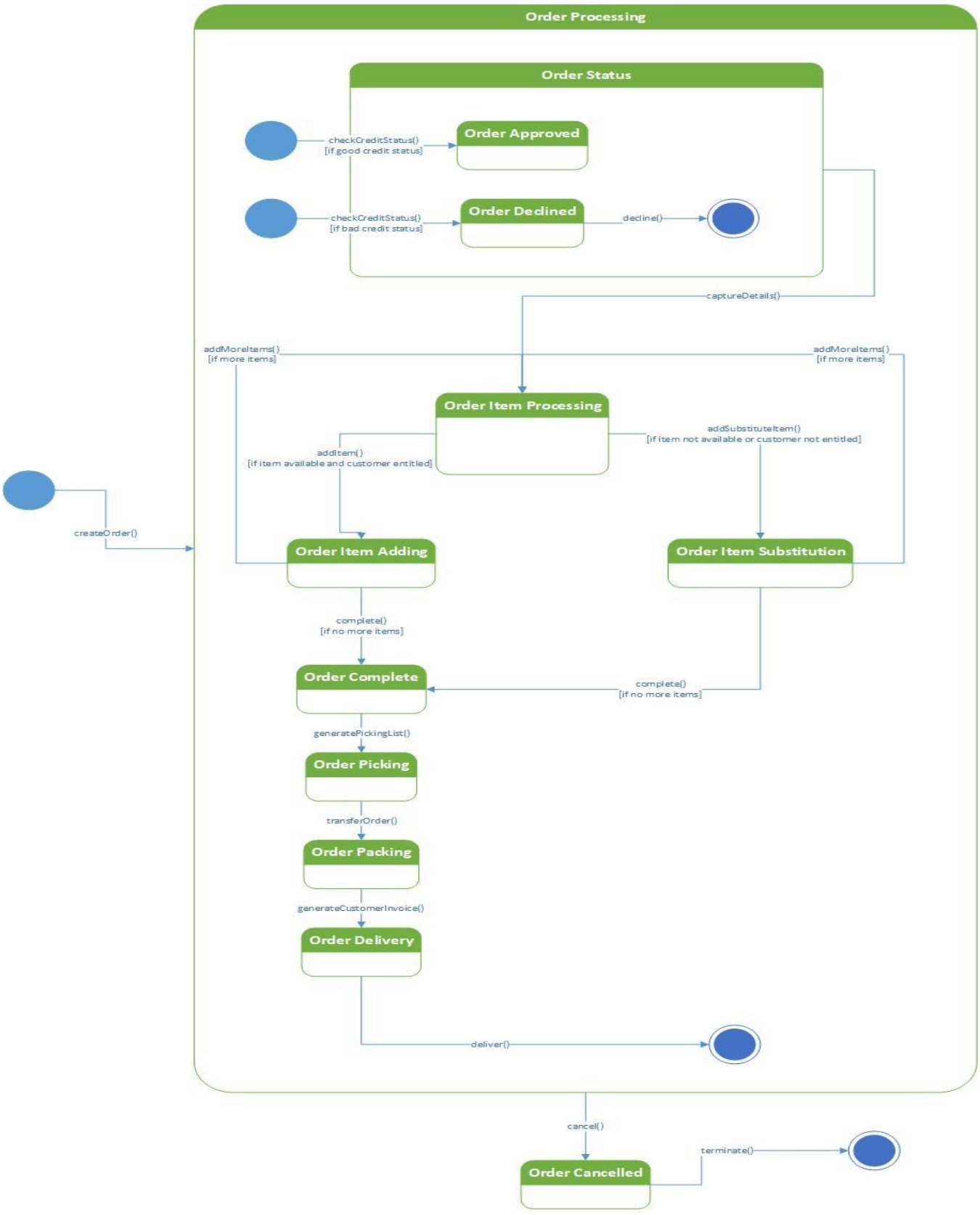
3.1. Analysis Class Diagram



Data Dictionary	
Class	Description
Customer	This class represents a customer. It includes the customer's identifying number, name, contact details, address, entitlement and account balance. It interacts with the Payment class when the customer makes a payment and with the Order class when an order is placed.
Payment	This class represents a payment made by the customer. It includes the payment details such as: transaction number, date, amount and type of transaction. It contains references to the type of payment from the Credit Note, Credit Card and EFT classes.
Product	This class represents the products that Poppel offers. It includes the product's identifying number, name, description, price, quantity, entitlement status, availability and the imported status. This class inherits from the Stock class.
Stock	This class includes the product's identifying number, stock level and availability. It is referenced in the Product class.
Warehouse	This class represents the warehouses that Poppel owns. It includes the warehouse's identifying number, address, capacity and the products it stores.
Supplier	This class represents the suppliers to Poppel. It includes the supplier's identifying number, company name, product(s) it supplies, quantity of products supplied, cost of the products and the warehouse(s) it supplies to.
Order	This class represents the order created by the customer. It includes the order's identifying number, date, total price, status and estimated delivery date. This class is composed of products in the Product class.
Marketing Clerk	This class represents the marketing clerk that handles the order. It includes the clerk's identifying number, name and branch. It interacts with the Order class when an order is made and processed. It also interacts with the Picking Clerk class.
Picking Clerk	This class represents the picking clerk that receives the processed order from the marketing clerk. It includes the clerk's identifying number, name and branch. It interacts with the Picking List class and the Dispatch Clerk class.
Picking List	This class represents the list that is generated by the picking clerk and is used to select the items on the order. It includes the picking list's number and the order number.
Dispatch Clerk	This class represents the dispatch clerk that receives the order from the picking clerk and prepares the order for delivery. It includes the clerk's identifying number, name and branch. It interacts with the Delivery class when an order is complete.

Delivery	This class represents the delivery of the order. It includes the delivery's identifying number, the courier used and the status of the delivery. It inherits the courier from the Courier class.
Courier	This class represents the courier company used by Poppel to make the delivery. It includes the courier company identifying number and name.

3.2. State Machine Diagram



4. NON-FUNCTIONAL REQUIREMENTS

Functional requirements describe what a system must do - modelled with use case diagrams and narratives. Non-functional requirements describe how well the system performs - documented in list of non-functional requirements or in a use case narrative for requirements that can be linked to specific use cases. Since non-functional requirements stipulates criteria that can be used to judge and describe the operation of a system (performance characteristic) in specific conditions, rather than particular behaviors of the system, it has to be documented separately from functional requirements.

4.1. Performance requirements

For the system to perform optimally, it should be high speed to perform its ordering functionality rapidly and even though multiple users can make orders simultaneously, it should be able to respond immediately to user actions. The system should be always available, in-service and reliable.

The system should also have high capacity to handle and support large numbers of users, data and workload. This includes high volumes of order information and multiple orders taking place concurrently, without causing the system to slow down or crash. Thus, high performance computer hardware should be used to ensure rapid system response time.

4.1. Usability requirements

The system should be very user friendly, and easy to understand and navigate. The system has to cater for employees and customers with varying levels of computer literacy and skills, and allow all users to be able to use it with ease. The system should also support and incorporate different local languages to cater for users with various home-languages and make the system easier to understand and use.

4.1. Security requirements

The system should have robust access control limiting the users of the system to only registered customers and specific Poppel employees. They also would require user authentication via a log-in portal to be able to use the system. The customer details are kept secure through

encryption. For virus control and protection from hackers, an anti-virus and firewall package should be installed and updated regularly.

4.1. Volume and storage requirements

The system would require a server with very large storage capacity to store the large amounts of customer, stock and order data and information.

4.1. Configuration / compatibility requirements

The custom-built solution should be able to integrate well with the existing systems at Poppel and should be compatible with all computer hardware and software that it uses.

4.1. Reliability requirements

The system should be updated and maintained regularly to avoid system failures. The system should always be online and in-service to avoid payment processing issues.

4.1. Backup / recovery requirements

The system should back up data automatically at regular intervals so that information is not lost due to system failure or sudden power outages.

4.2. Training requirements

All employees should go under compulsory training to learn how to use the new system and improve computer skills and competency. Customers can make use of an interactive online tutorial or watch a short video clip online on how to use the new ordering system.

5. SUMMARY

5.1. Project status to date

We have used the waterfall approach and have completed the first two phases, namely the initiation stage and the analysis stage. We used various fact-finding techniques to ensure that we found a solution tailor made to suit Poppel and their clients.

During the initiation stage we produced the Business Case which provided an in-depth analysis of the problems and objectives of Poppel. We also looked at the various opportunities and solutions available to Poppel and looked at the advantages of each solution before deciding on one. This assessment was supported by an activity diagram, risk assessment matrix and feasibility assessment.

During the analysis stage we produced the User Requirements Specification. This included the user requirements and non-functional requirements. This is supported by a use-case diagram and use-case narrative. These were the realised in the form of an analysis class diagram, this helped us to understand how the classes interact with each other. A systems sequence diagram was also used to show how the objects interact in a time sequence. We also produced a state machine diagram which shows the states the objects may be in as well as the interaction between the states.

5.2. Project planning

In order to complete the project, we have four phases left.

The next phase is design, this is where the technical specifications are defined.

The next phase is coding and construction, this is where the design specified in the previous phase is built. This includes both the software and hardware for the system.

The next phase is testing, this will include various tests on the system to ensure that is working correctly. This phase will produce a test pack which includes: test plans, test cases and test results.

The final phase is deployment and implementation, this is where the solution is rolled out and used in the business.