Response to Chapter 6 Questions—Foundations for Systems Design (Revised)

Author: Amaree Ryans, Saim Mahmud

Course: CIS 370---System Analysis and design

1. Controlling fraud at On the Spot:

a. Types of possible fraud:

Customer: Could potentially commit fraud by creating fake or altered mailing labels to ship items at lower rates or to incorrect addresses.

Truck Driver: Might collude with customers to misreport the delivery or collection of packages, thereby pocketing payments or manipulating the shipment data.

Collaboration between users: Both customers and truck drivers could collude to underreport sales or divert goods to unauthorized locations.

b. Steps to minimize fraud:

Implement strict authentication measures for printing and altering mailing labels.

Regular audits of shipments, deliveries, and payment transactions.

Track and monitor driver routes and activities using GPS or similar technology.

Use of digital receipts and confirmations to ensure transactions are recorded in real-time and are traceable.

2. Controlling system access:

a. Access controls for various users:

Customer: Should have the ability to view and track orders, and if payments online were possible, secure login, and encrypted payment gateways should be provided.

Truck Driver: Access should be limited to functionalities pertinent to their duties like route information, delivery schedules, and confirmation of deliveries. Enhanced security, such as biometric authentication, could be considered.

Bill (Owner): Should have administrative access, including the ability to manage user roles, view detailed logs of activities, and modify any part of the system as needed.

b. Adequacy of userID and password:

This basic security measure might be sufficient for customers but should be supplemented with multi-factor authentication (MFA) for both drivers and Bill, considering the sensitivity and scope of the data they can access.

3. Digital certificates and HTTPS:

a. Research required to implement a digital certificate:

Bill would need to research trusted certificate authorities (CAs) that can issue a digital certificate, the cost involved, and the validation processes (DV, OV, EV).

b. Implementing a secure site with HTTPS:

Purchase a digital certificate from a CA.

Install the certificate on the server hosting the 'On the Spot' website.

Configure the server to use HTTPS by default and ensure all website data is transmitted securely.

c. Recommendation on HTTPS and digital certificates:

Yes, it is recommended to secure the site with HTTPS and digital certificates. This not only protects data integrity and confidentiality but also boosts customer trust and complies with security best practices.

Response to Chapter 8 Questions—Designing the User Interface (Revised)

Author: Amaree Ryans, Saim Mahmud

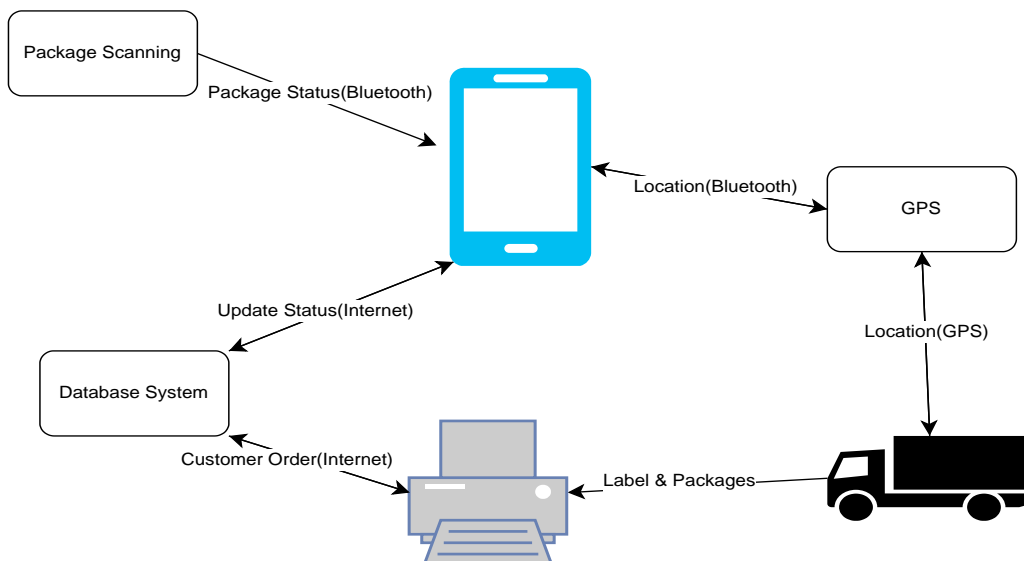Course: CIS 370---System Analysis and design

Question #1:

Question #2:

Dialog for RMO Use Case View Scheduled Pickups/Deliveries	
SYSTEM:	USER:
What would you like to do?	Get directions to the next stop.
USER:	SYSTEM:
I'd like to check for scheduled pickups and deliveries for today.	Opening google maps, directions for 100 Royal Lane.
SYSTEM:	USER:

You have 15 scheduled pickups and 10 scheduled deliveries for today. USER: What is the address for the next stop? SYSTEM: The next stop is a pickup at 100 Royal Lane, Buffalo, NY. It is 8.1 miles away.	Are there any new deliveries or pickups? SYSTEM: 1 new pickup and 1 new delivery have been added to the queue.

Question # 3:

Package Scanning

Package Status(Bluetooth)

Location(Bluetooth)

GPS

Update Status(Internet)

Database System

Location(GPS)
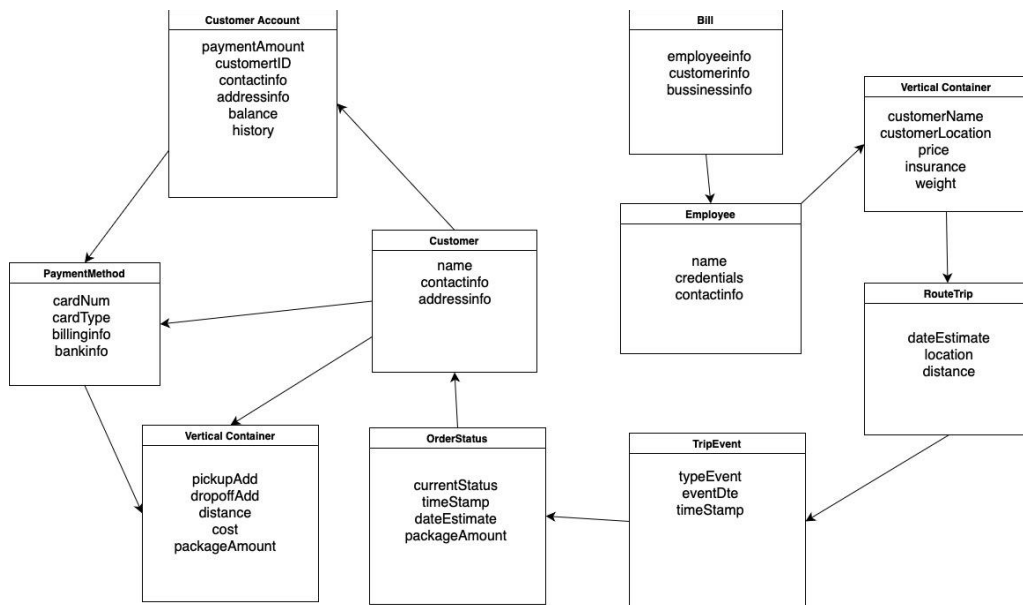
Customer Order(Internet)

Label & Packages

(Draw.io)

Response to Chapter 9 Questions—Designing the Database (Revised)

Author: Amaree Ryans, Saim Mahmud

Course: CIS 370---System Analysis and design

Question 1.)

Question 2.)

Table	Attributes
Customer	Name, Contact Information, Address Information, History, Activity
Customer Account	Account ID, History, Activity

Payment Method	Card Number, Billing Address, Card Holder, Approval Status
Employee	Employee ID, Credentials, Name, Contact Info
Package	Weight Info, Amount, Destination, Fragility, Price, Size
Route Trip	Status, Destination, Distance, Time Estimate
Trip Event	Status, Update Type, Delay, Ahead, Location
Order Status	Status, Delay, Ahead, Location
Bill	Employees, Customers, Contact info
Pickup Request	Pickup Location, Dropoff Location, Distance, Package Amount, Fragility, Cost

Question 3.)

Type	Description
Account	Account number, account history, linked email
Status	On the way, waiting to be shipped, delivered, location
Size	Height, length, width, feet, inches, centimeters, meters
Money	Card, Cash, Visa, Mastercard, Bank

Question 4a.)

The roles of Data Administrator and Database Administrator share similarities yet possess distinct responsibilities. Both positions involve extensive involvement with data, but upon closer examination, it's evident that they each carry unique duties.

As a Data Administrator, the primary focus is on providing timely, precise, and comprehensive data as required. Conversely, the Database Administrator's role entails the management of databases housing that very data. The Database Administrator, or DBA, ensures the database is easily accessible, navigable, and accurate. In simpler terms, the DA prepares and ensures the accuracy of the data, while the DBA oversees its storage, making it usable for others in the organization. It's akin to a cashier taking an order and the cook preparing it for delivery to the customer. The cashier ensures the order details are correct, while the cook ensures the food is well-prepared, clean, and delivered to the right recipient.

Both positions encounter various challenges. The DBA deals more with technical issues surrounding database functionality and data entry. Conversely, the DA not only collects the data but also analyzes it to derive meaning, although they are less involved in its entry. Each position presents its own set of obstacles, necessitating careful consideration when contemplating either role within a company.

While these positions may appear similar superficially, they entail distinct and intricate responsibilities. Nevertheless, despite their differing duties, both roles complement each other seamlessly. The DBA relies on the DA to fulfill their tasks, and conversely, the DA's work is essential for the DBA to perform their duties effectively.

Question 4b.)

Considering the operational dynamics of On the Spot, it's imperative to deliberate on the roles of Database Administrators (DBAs) and Data Analysts (DAs) within the organization. The range of positions and potential responsibilities for DAs and DBAs in Bill's company is extensive. Yet, unlike other roles, errors made by either the DBA or the DA could have severe repercussions on the internal workings of the company. Mistakes related to data input, collection, or storage could lead to widespread issues affecting multiple deliveries and customer accounts, in contrast to a single misdelivered package to a neighboring address. Thus, handling these positions with care is paramount.

Choosing the right approach for DBAs and DAs ultimately hinges on the scale of Bill's company. It's common knowledge that companies like Amazon, FedEx, and UPS boast dedicated teams for data and database administration, likely larger than Bill's entire workforce. The decision rests with Bill, but there are several options to consider. He could shoulder the responsibilities himself for ensuring correctness, yet this may prove overwhelming alongside managing the company. Alternatively, he could assign the task to a trusted employee, though

transitioning from package delivery or warehouse sorting to database analysis and administration could pose challenges and require a learning curve. In cases of minimal orders and data analysis, the task might be rotated among employees as a routine practice. However, in times of significant growth, it might be wise to hire external expertise or invest resources in training existing employees to assume these responsibilities.

The administration of data and databases holds critical importance for the functionality of Bill's company, with various approaches available for handling it. Ultimately, the decision rests with Bill, guided by his plans and forecasts for the company's future—a decision of significant import.

Response to Chapter 10 Questions—Approaches to System Development (Revised)

Author: Amaree Ryans, Saim Mahmud

Course: CIS 370---System Analysis and design

Question 1a.)

In the adaptive and iterative development of the 'On the Spot' system, the sequence in which the subsystems are built holds significant sway over the project's overall success and efficiency. A suggested order for developing the four subsystems is outlined below.

First and foremost, the development of the customer account subsystem is recommended, as it serves as the bedrock of the entire system. Customer accounts play a pivotal role in tracking user information, managing authentication processes, and delivering personalized services. By establishing the customer account subsystem early on, the development team can ensure seamless interaction with user accounts and access to pertinent customer data for all subsequent subsystems.

Following the customer account subsystem, attention should shift to the pickup request subsystem. This subsystem is fundamental to the core functionality of the 'On the Spot' courier service, enabling customers to schedule pickups for their packages. By prioritizing the development of this subsystem in conjunction with the customer account subsystem, users can begin interacting with the system, initiating the flow of data and requests within the application.

Once the pickup request subsystem is in place, focus can then be directed towards the package delivery subsystem. This subsystem manages the processing and fulfillment of package delivery orders, encompassing tasks such as shipment tracking, inventory management, and delivery status updates. By sequencing its development after the pickup request subsystem, the development team can ensure a seamless transition from pickup to delivery, thereby facilitating an uninterrupted end-to-end experience for users.

Finally, the routing and scheduling subsystem should be prioritized last. This subsystem optimizes delivery routes, schedules pickups and deliveries, and allocates resources accordingly. By deferring its development until after the customer support, pickup request, and package delivery subsystems are established, the development team can leverage insights gleaned from these earlier stages to inform routing and scheduling decisions effectively.

Question 1b.)

Subsystem	Use Case
Pickup Request Subsystem	Schedule Pickup
Package Delivery Subsystem	Track Shipment/ Update Delivery Status
Customer Account Subsystem	Manage Account Information
Routing and Scheduling Subsystem	Optimize Delivery Routes

Assigning use cases to specific subsystems reinforces the initial rationale behind developing the subsystems in a sequential order. The proposed sequence was determined by the logical progression of functionality required for the On the Spot

system and the interdependencies among subsystems. By correlating each use case with its respective subsystem, the coherence of the order becomes evident.

The Customer Account Subsystem, being foundational, caters to use cases pertaining to managing account information, such as updating personal details or preferences. In the Pickup Request Subsystem, use cases like scheduling pickups directly engage with this subsystem, which is responsible for processing customer requests and initiating the pickup process. As for the Package Delivery Subsystems, use cases related to tracking shipments and updating delivery statuses are intricately linked to this subsystem, which oversees the fulfillment and tracking of delivery orders. Lastly, in the Routing and Scheduling subsystems, use cases involving the optimization of delivery routes find their best fit, as this subsystem is tasked with managing logistics and resource allocation.

Question 1c.)

Subsystem	Classes
Pickup Request Subsystem	Pickup Request/ Truck Driver/ Payment
Package Delivery Subsystem	Truck Driver/ Payment/ Shipment/ Invoice/ Package

Customer Account Subsystem	Customer/ Account Information
Routing and Scheduling Subsystem	Delivery Routes/Scheduler

Assigning each class to a specific subsystem reaffirms the original premise of developing the subsystems in a sequential order. When aligning each class with its corresponding subsystem(s), the rationale behind the development order becomes evident.

Within the Customer Account subsystem, classes like Customer and Account are paramount, focusing on customer management and foundational for user account and preference management. These classes support use cases such as managing account information.

In the Pickup Request Subsystem, classes such as Pickup Request and Truck Driver are closely associated, managing pickup requests and the drivers executing them. Payment-related classes are also linked to this subsystem, handling transactions associated with pickup requests.

For the Package Delivery Subsystems, classes like Package, Shipment, and Invoice are managed primarily within this subsystem. These classes facilitate use cases related to tracking shipments and updating delivery statuses.

In the Routing and Scheduling Subsystem, the class Scheduler is pivotal. This class directly contributes to optimizing delivery routes and managing scheduling logistics.

Question 2a.)

- **Floor Plan:**

  A floor plan illustrates the internal layout of a building in graphical form, showcasing rooms, walls, doors, and windows. It offers an aerial perspective of each floor, revealing how rooms are arranged and the flow of space within. Floor plans aid in comprehending the spatial organization and usability of the structure.

- **Elevation Drawing:**

  An elevation drawing presents a flat representation of a building's exterior facade. It showcases the vertical surfaces of the structure, including the positioning of windows, doors, and architectural embellishments. Elevation drawings provide insight into the appearance and proportions of the building from various viewpoints, aiding in understanding its overall design and character.

- **Site Plan:**

  A site plan offers a graphical portrayal of a property and its immediate surroundings. It encompasses the building's footprint, landscaping features, pathways, driveways, and property boundaries. Site plans visualize how the building integrates into its environment, including its orientation, access routes, and outdoor features.

- **3D Rendering:**

  A 3D rendering is a digital model that provides a lifelike, three-dimensional depiction of a building. It enables viewers to explore the design from different perspectives, offering a detailed representation of the structure's shapes, materials, and spatial arrangements. 3D

renderings assist stakeholders in grasping the design concept and making well-informed decisions regarding the project.

Question 2b.)

Various models are indispensable in architecture and related fields due to their distinct purposes and ability to offer diverse perspectives on the system under design or analysis. They are essential for several reasons, one being comprehensiveness. Different facets of a system may necessitate different types of models for optimal representation. For instance, textual models might excel in describing processes and requirements intricately, while graphical models can effectively depict spatial relationships and design concepts.

Another reason is clarity and communication, as individuals possess varying preferences and learning styles in comprehending complex information. While some may find textual descriptions more accessible, others may favor visual representations like diagrams and schematics. By presenting multiple model types, architects can accommodate diverse audiences and ensure clear and efficient communication.

Details and abstraction are also significant considerations. Models can span from highly detailed depictions to abstract conceptualizations, depending on the required levels of complexity and abstraction. Textual models might furnish detailed descriptions of specific elements, while graphical models offer a broader overview or visualization of intricate relationships.

Analysis and evaluation constitute another rationale, as different model types lend themselves to distinct methods of analysis and evaluation. Mathematical models, for example, enable

quantitative analysis and simulation of system behavior, whereas graphical models facilitate qualitative analysis and visualization of patterns and trends.

Consideration of audience and stakeholder needs is crucial too, as different stakeholders may necessitate various model types to fulfill their specific informational needs and decision-making requirements. For instance, clients may prefer visual representations aiding them in visualizing the final product, while engineers may seek detailed technical specifications and calculations.

Question 3a.)

Planning Phase

- This stage entails establishing goals and objectives for your college education and delineating the scope of your academic program.
- Techniques: Goal establishment, outlining study plans, checking degree requirements.
- Tools: Academic counseling, degree planning applications, frameworks for goal setting.

Preparation Phase

- During this stage, you gear up for the academic demands and prerequisites of college life, including course selection, obtaining necessary materials, and arranging your timetable.
- Techniques: Choosing courses, strategies for time management, procuring study resources.
- Models: Course schedules, semester planners, timetables for study.
- Tools: Course registration portals, academic organizers, apps for time management.

Execution Phase

- The execution phase involves actively participating in coursework, attending classes, fulfilling assignments, and engaging in extracurricular pursuits.

- Techniques: Active engagement in learning, efficient note-taking, collaboration with peers.

- Models: Study aids, lecture notes, plans for projects.

- Tools: Textbooks, online educational platforms, tools for collaboration.

Assessment Phase

- During this stage, you assess your progress toward academic objectives, reflect on learning experiences, and pinpoint areas for improvement.

- Techniques: Self-evaluation, soliciting feedback from instructors, analyzing academic performance.

- Models: Reports on progress, evaluations of performance, journals for reflection.

- Tools: Software for tracking grades (e.g., D2L), academic advisory services, networks for peer support.

Question 3b.)

Planning Phase

- Establishing educational goals and aims

- Exploring potential academic programs and career pathways

- Consulting academic advisors to review program prerequisites.

- Developing a study blueprint outlining mandatory courses and elective alternatives

- Assessing financial aspects, including tuition fees and financial aid possibilities

Preparation Phase

- Choosing and enrolling in courses

- Acquiring required textbooks and course materials

- Arranging study environments and materials

- Creating a weekly or semester timetable, incorporating class schedules and study sessions

- Familiarizing oneself with campus amenities and support facilities

Execution Phase

- Participating in lectures and attending classes

- Meeting deadlines for assignments, quizzes, and examinations

- Contributing to group assignments and collaborative learning endeavors

- Involvement in extracurricular activities, clubs, or organizations pertinent to personal interests or career aspirations

- Seeking guidance from instructors or tutors as necessary

Assessment Phase

- Reviewing study materials and reflecting on learning encounters

- Assessing academic performance and progress towards degree criteria

- Requesting input from instructors and peers on academic endeavors

- Identifying areas for enhancement and formulating strategies for future achievements

- Planning forthcoming actions, such as course selection for upcoming semesters or pursuing internships or research prospects

Question 3c.)

Planning Phase

- SMART Objectives: Establishing specific, measurable, attainable, relevant, and time-bound objectives ensures precision and concentration in academic planning.
- SWOT Evaluation: Analyzing strengths, weaknesses, opportunities, and threats aids in recognizing potential obstacles and prospects in pursuing academic aspirations.
- Degree Planning Applications: Employing software tools tailored for academic planning can simplify the process of outlining degree prerequisites and course sequences.

Preparation Phase

- Time Management Techniques: Utilizing methods like the Pomodoro Technique or time segmentation aids in effectively allocating time for studying, attending classes, and fulfilling assignments.
- Course Selection Approaches: Investigating course offerings, reviewing feedback, and seeking advice from advisors assists in choosing courses aligning with academic and career objectives.
- Organizational Methods: Implementing organizational structures like digital schedules, task inventories, and file organization aids in monitoring deadlines and resources.

Execution Phase

- Active Learning Approaches: Engaging in active learning methods such as summarizing, self-quizzing, and elaborating heightens understanding and retention of course content.

- Efficient Note-Taking Practices: Employing techniques like the Cornell Note-Taking System or concept mapping assists in capturing key ideas and concepts during lectures and readings.

- Collaborative Learning and Peer Interaction: Participating in study circles, peer mentorship sessions, or virtual communities promotes cooperative learning and information exchange.

Assessment Phase

- Self-Reflective Practices: Involving in self-reflection through journaling or guided prompts aids in evaluating learning experiences, strengths, and areas necessitating improvement.

- Feedback Acquisition Strategies: Actively soliciting feedback from instructors, peers, and mentors yields valuable insights into academic performance and avenues for development.

- Data Interpretation Approaches: Analyzing academic data such as grades, assessment scores, and course appraisals helps discern patterns and trends to guide future learning strategies.

Question 3d.)

Degree Plan Model (Existing)

- This model delineates the requisite courses, optional electives, and credit hours essential for meeting degree prerequisites within a designated program of study. It acts as a guide for academic strategizing, ensuring students adhere to their path towards graduation.

Weekly Schedule Model (Existing)

- A weekly schedule model aids students in effectively allotting time for class attendance, study sessions, assignment completion, and involvement in extracurricular activities. It offers a visual depiction of time management commitments, facilitating efficient use of time.

Grade Tracking Model (Existing)

- This model entails the monitoring of grades and academic performance across various courses and academic terms. It assists students in tracking their advancement, recognizing areas of proficiency and improvement, and making educated choices concerning academic priorities and study methodologies.

Progress Dashboard Model (Created)

- A progress dashboard model furnishes a visual summary of academic advancement towards fulfilling degree requirements. It incorporates elements such as accomplished credits, outstanding prerequisites, GPA trends, and significant milestones. This model aids students in monitoring their progression and sustaining motivation throughout their collegiate journey.

Resource Allocation Model (Created)

- The resource allocation model guides students in effectively distributing resources such as time, effort, and finances to bolster academic achievement. It involves assessing individual priorities, identifying resource requisites, and formulating strategies for maintaining equilibrium between academic pursuits and personal obligations.

Question 3e.)

Degree Planning Software

- Tailored software applications crafted for academic planning and monitoring degree programs can aid in crafting and managing degree plan frameworks. These platforms commonly offer functionalities like scheduling courses, tracing degree requisites, and computing GPA.

Calendar and Scheduling Apps

- Calendar and scheduling tools facilitate the implementation of the weekly schedule model by enabling students to arrange class schedules, study periods, assignment due dates, and extracurricular engagements. Illustrations comprise Google Calendar, Microsoft Outlook, and/or Apple Calendar.

Response to Chapter 11 Questions—Project Planning and Project Management (Revised)

Author: Amaree Ryans, Saim Mahmud

Course: CIS 370---System Analysis and design

Question 1:

Problem Description

After encountering numerous companies during his time at a renowned courier service, Bill Wiley stumbled upon a common challenge that many businesses were grappling with - the need for same-day local deliveries. Multiple companies were seeking a service capable of promptly shipping packages to clients situated nearby. Recognizing the substantial market potential, Bill saw an opportunity to address this pressing need.

Subsequently, the inception of On the Spot courier delivery service was born to meet this demand. Termed as the Consolidated Sales and Marketing System (CSMS), this new initiative is designed to tackle the issues and meet the requirements voiced by businesses during Bill's previous role.

System Capabilities

Outlined herein are the essential system capabilities necessary to fulfill company demands at an elevated level. These capabilities encompass:

• Streamlined automated pickup request process

• User-friendly interface for displaying statuses, updates, and pertinent customer details

• Provision of diverse express options to cater to company requisites

• Comprehensive and accurate order fulfillment services

• Fair pricing structure based on package weight, dimensions, and delivery distance

• Simplified creation of customer/business accounts capable of storing billing particulars and order histories

• Facilitation of package update and status sharing

• Provision of assistance in overcoming any obstacles encountered

• Swift, seamless, hands-free same-day deliveries

Business Advantages

The advantages of implementing such a system for companies are manifold, enabling them to expand through swift and dependable same-day deliveries while enhancing customer satisfaction. More specific benefits include:

• Enhanced customer satisfaction due to dependable same-day delivery services.

• Augmented productivity and streamlined workflows, resulting in increased business influx.

• Organic growth through positive word-of-mouth stemming from satisfied customers.

• Establishment and expansion of customer base, fostering consistent business growth.

• Provision of prompt and professional assistance for any encountered issues.

• Mitigation of potential delays or obstacles that may arise in the long term.

Question 2:

Subsystem	Use case
Customer Account Subsystem	Capability to access account history, monitor orders, and retain payment and address details for streamlined and expedited ordering processes.
Pickup Request Subsystem	Capability to effortlessly initiate pickup requests for prompt and efficient dispatch of deliveries.
Package Delivery Subsystem	Capability to swiftly and precisely fulfill orders while providing timely updates to ensure customer contentment.
Routing and Scheduling Subsystem	Capability to meticulously devise schedules and routes aimed at minimizing time consumption, thereby averting delays, fuel wastage, and ensuring customer satisfaction.
Administration Subsystem	Capability to accurately manage data and oversee other subsystems to ensure seamless operations for both customers and the company.

Question 3:

CSMS Pickup Request Subsystem Iteration Schedule		
Iteration	Time Estimate	Use Cases assigned to iteration
1	5 weeks	Capability to compute distance between origin and destination points
2	4 weeks	Capability to determine pricing based on distance and package dimensions
3	5 weeks	Capability to determine pricing based on distance and package dimensions
4	4 weeks	Capability to process multiple packages simultaneously

5	5 weeks	Capability to integrate orders into the system for precise estimation
Total	23 weeks	

CSMS Package Delivery Subsystem Iteration Schedule		
Iteration	Time Estimate	Use Cases assigned to iteration
1	4 weeks	Capability to furnish a compilation of packages and deliveries.
2	6 weeks	Capability to generate a delivery route prioritization.
3	5 weeks	Capability to provide GPS tracking for streamlined deliveries.
4	4 weeks	Capability to generate a timed schedule for seamless completion.
5	3 weeks	Capability to convey precise estimates to customers.
Total	22 weeks	

CSMS Administration Subsystem Iteration Schedule		
Iteration	Time Estimate	Use Cases assigned to iteration
1	4 weeks	Capable of recording and storing data from past deliveries.
2	4 weeks	Capable of displaying data in an organized and legible format.
3	5 weeks	Capable of presenting data in a tidy graph format for analysis purposes.
4	5 weeks	Capable of identifying negative issues, reviews, and similar concerns.
5	5 weeks	Capable of seamlessly integrating with other subsystems for cohesive operation.

Total	23 weeks	

CSMS Total Iteration Schedule		
Iteration	Time Estimate	Use Cases assigned to iteration
1	4 weeks	Capable of storing user details, processing user orders, providing a roster of deliveries, and recording and preserving data from prior deliveries.
2	4 weeks	Capable of managing user payment methods, generating precise and efficient schedules, receiving route updates for customer notifications, and presenting data in an organized and readable format.
3	5 weeks	Capable of displaying order histories for customers, furnishing accurate updates and enabling GPS tracking, computing order prices, and exhibiting data in a tidy graph for analysis purposes.
4	5 weeks	Capable of implementing a rewards program for customers, offering timed schedules, marking deliveries as completed, and identifying and addressing negative issues and reviews.
5	5 weeks	Capable of aiding with customer assistance, maintaining a comprehensive schedule with GPS and delivery functionalities, and operating seamlessly alongside other subsystems.
Total	23 weeks	

Response to Online Chapter C: Project Management Techniques

(Revised)

Author: Amaree Ryans, Saim Mahmud

Course: CIS 370---System Analysis and design

Year	Annual Benefits	Operating Cost	Cashflow	Discounted Factor	Present Value	Cumulative Cashflow
0			($225,000)	1	($225,000)	($225,000)
1	$55,000	$5,000	$50,000	0.9259	$46,295	($175,000)
2	$60,000	$5,000	$55,000	0	$47,151.50	($120,000)
3	$70,000	$5,500	$64,000	0	$51,200.10	($55,500)
4	$75,000	$5,500	$69,500	0	$51,075.55	$14,000
5	$80,000	$7,000	$73,000	0	$49,676.50	$87,000
6	$80,000	$7,000	$73,000	0	$45,997.30	$160,000
7	$80,000	$7,000	$73,000	0	$42,580.90	$233,000
8	$80,000	$8,000	$72,000	0	$38,887.20	$305,000
				NPV	$147,864.05	
				ROI	57% = npv/pv of cash outflow	
				Payback Period	3 + 55,500/69,500	
					$3.80	

(Microsoft Excel)

Response to Chapter 14 Questions—Deploying the New System (Revised)

Author: Amaree Ryans, Saim Mahmud

Course: CIS 370---System Analysis and design

1. Development Plan:

Use Case	Approximate Order of Development
Customer Account Subsystem	1
Pickup Request Subsystem	2
Package Delivery Subsystem	3
Routing and Scheduling Subsystem	4
Administration Subsystem	5

2. Subsystem Iteration Test Plan:

Type of Testing	Conducted by	Testing Includes	Reason for Inclusion
Unit Testing	Developers	Testing individual units of code for correctness and functionality	Ensures each unit works as expected
Integration Testing	QA Team	Testing interactions between subsystems to ensure they work together seamlessly	Verifies subsystem integration
Acceptance Testing	End Users	Validating system functionality against user requirements	Confirms system meets user needs

Performance Testing	QA Team	Evaluating system performance under load conditions	Ensures system can handle expected workload

3. Total Project Test Plan:

Type of Testing	Conducted by	Testing Includes	Reason for Inclusion
System Testing	QA Team	Testing the entire system against requirements and specifications	Validates overall system functionality
User Acceptance Testing	End Users	Validating system usability and meeting user needs	Confirms system is acceptable for end users
Regression Testing	QA Team	Ensuring system changes do not negatively impact existing functionality	Prevents introduction of bugs during updates
Security Testing	QA Team	Evaluating system security measures against potential threats	Ensures system protects user data and integrity

4. Conversion/Deployment Plan:

Data Conversion:

Database Table/Class	Conversion Requirements
User Information	Save from old system
Order History	Save from old system
Payment Methods	Save from old system
Delivery Routes	Discard from old system
Customer Reviews	New data for input in new system

Deployment Schedule:

Subsystem	Testing Phase	Deployment Phase	Parallel Conversion
Customer Account	System, UAT	First	Yes

Pickup Request	System, UAT	Second	Yes
Package Delivery	System, UAT	Third	Yes
Routing and Scheduling	System, UAT	Fourth	Yes
Administration	System, UAT	Fifth	Yes

Advantages of Parallel Conversion:

- Reduces risk by allowing gradual transition from old to new system.

- Enables comparison and validation of old and new system outputs.

Disadvantages of Parallel Conversion:

- Requires additional resources and effort to maintain both systems simultaneously.

- May prolong deployment process due to dual operations.