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**INTRODUCTION**

**packTrack** (Package Tracker):

- Purpose: packTracker is a software project designed to provide a comprehensive package tracking and management solution for a courier company like FedEx. Its primary purpose is to streamline the package handling process, enhance customer service, and optimize logistics operations.

- Context: In the context of FedEx, packTracker would serve as an integrated system to manage the entire lifecycle of packages, from the moment they are accepted by FedEx to their final delivery to customers. Here are some key features and contexts for this software:

1. **Package Registration**: Upon receiving a package, the system allows FedEx employees to input essential package details such as sender information, recipient details, package contents, and destination.
2. **Tracking**: The system provides real-time package tracking for both FedEx staff and customers. Customers can input their tracking numbers on the **packTrack** website to get updates on their package's location and estimated delivery time.
3. **Routing and Optimization**: Package Tracker uses algorithms to optimize package routing and delivery routes. It considers factors like package size, weight, destination, and delivery deadlines to ensure efficient delivery.
4. **Inventory Management**: The software keeps track of inventory at various FedEx locations, ensuring that packages are easily located and sorted for efficient transportation. Can get the individual inventory location on transit history, where parcel reached and carry forward to destination locations.
5. **Communication**: The system sends automated notifications to customers, informing them of package status updates, delays, or delivery confirmations via email, SMS, or mobile app notifications.
6. **Security**: To protect sensitive package information, the system implements robust security measures, including encryption, access controls, and authentication.
7. **Integration**: Package Tracker can be integrated with other FedEx systems, such as billing and payroll, to ensure a seamless end-to-end workflow.
8. **Customer Support**: Customer service representatives can access the system to assist customers with inquiries, track missing packages, and resolve issues more efficiently.

Overall, Package Tracker would significantly enhance the efficiency, accuracy, and customer satisfaction levels of a courier company like FedEx, making it an indispensable tool in the modern logistics industry.

**STAKEHOLDERS**:

1. **Customer (End users)**
   1. **Role**: The individuals or groups who will ultimately use the software. Their needs, expectations, and feedback are crucial to the project's success. Customers utilize Delivery services to ship their packages and receive shipments. They entrust FedEx with the timely and safe delivery of their goods, whether it's documents, parcels, or freight.
   2. **Interest**: Customers want reliable, efficient, and consistent services that meet their expectations. This includes on-time delivery, accurate tracking information, and the safe handling of their shipments.
   3. **influence**: Customers are the lifeblood of FedEx's business. Their shipping needs and volume of shipments directly impact the company's revenue. The more customers use FedEx's services, the greater its revenue potential.
2. **Business analysts:**
   1. **Role**: Business analysts bridge the gap between technical teams and business stakeholders. They gather and translate business requirements into technical specifications for the development team.
   2. **Interest**: Business analysts are interested in translating business needs into technical requirements and ensuring that the software aligns with the organization's strategic objectives.
   3. **Influence**: Business analysts influence the project by bridging the gap between business stakeholders and technical teams, thus guiding the development process.
3. **Product Owners or Product Managers:**
   1. **Role**: These stakeholders represent the interests of the end users and are responsible for defining and prioritizing the features and functionality of the software.
   2. **Interest**: Product owners are interested in aligning the software with the FedEx goals and satisfying customer needs. They aim to maximize the software's value.
   3. **Influence**: PO influences the project by defining requirements, setting priorities, and making decisions about the software's features and functionality.
4. **Project Manager**
   1. **Role**: The person responsible for planning, executing, and overseeing the packTrack software project. The project manager plays a central role in ensuring the project's success.
   2. **Interest**: The project manager's interest is in successfully delivering the packTrack software within scope, time, and budget. They are responsible for project planning, risk management, and ensuring that project objectives align with FedEx goals.
   3. **Influence**: Project managers have substantial influence in planning, organizing, and executing the packTrack project. They coordinate the efforts of the development team, liaise with stakeholders, and make critical decisions to keep the project on track.
5. **Development team**
   1. **Role**: This includes software developers of packTrack app, programmers, designers, and quality assurance professionals who are directly involved in building and testing the software and deploying the code in server.
   2. **Interest**: The development team is interested in creating high-quality software that meets requirements. They seek a clear scope, a well-defined development process, and appropriate tools and resources.
   3. **Influence**: The development team's expertise and effort are fundamental to the project's success. They influence the project through coding, design decisions, and their ability to meet deadlines.
6. **Quality and testing team**
   1. **Role**: QA professionals are responsible for ensuring that the packTrack software meets the required quality and reliability standards. They play a critical role in identifying and fixing defects.
   2. **Interest**: QA and testing teams are interested in ensuring the software's quality, reliability, and adherence to requirements. They aim to identify and rectify defects in the packTrack software.
   3. **Influence**: QA teams influence the project by providing critical feedback and preventing the release of faulty FedEx software. They play a vital role in maintaining quality.

These stakeholders collectively contribute to the success of the package tracking software project. Effective communication and collaboration among these stakeholders are critical to ensure that the software meets user needs, complies with regulations, and enhances the shipping company's operations.

**GATHERING REQUIREMENTS:**

Gathering requirements for package tracker software involves a multi-faceted approach to ensure a comprehensive understanding of user needs and system functionality. Here's how we can use the mentioned techniques:

**1. Interviews:**

* Identify key stakeholders within packTrack-FedEx, such as operations managers, customer service representatives, delivery drivers, and IT personnel.
* Conduct one-on-one interviews with these stakeholders to understand their specific requirements, pain points, and expectations from the package tracker software.
* Ask open-ended questions to encourage stakeholders to provide detailed insights into their daily tasks and challenges.

**2. Surveys:**

* Create surveys targeting a broader audience, including FedEx customers who use package tracking services.
* Use online survey tools to distribute surveys through various channels, such as the FedEx website, email newsletters, and social media.
* Include questions about user satisfaction, preferences, and suggestions for improving package tracking features.

**3. Observation:**

* Observe the current package tracking process within FedEx facilities.
* Pay close attention to how employees interact with the existing system, noting any pain points or inefficiencies.
* Document workflows, user behaviors, and any workarounds currently in use.

**4. Workshops:**

* Organize workshops with a cross-functional team of stakeholders, including representatives from different departments like operations, IT, customer service, and logistics.
* Use collaborative brainstorming sessions to gather input on desired features, system architecture, and user interface design.
* Facilitate discussions on key system requirements, constraints, and priorities.

**Functional Requirement:**

1. User Registration and Authentication: Users should be able to create accounts, log in securely, and access their package tracking history.
2. Package Registration: FedEx employees should be able to enter package details, including sender information, recipient information, package contents, and destination.
3. Real-Time Tracking: Users should be able to track the location of their packages in real-time through the website or mobile app.
4. Package Status Updates: The system should provide automated status updates to customers, including package acceptance, transit, and delivery confirmations.
5. Route Optimization: The software should optimize package routing and delivery routes based on package size, weight, destination, and delivery deadlines.
6. Package Search: Users should be able to search for packages using tracking numbers, sender names, or recipient names.
7. Notification Preferences: Users should have the option to customize their notification preferences, such as receiving email or SMS alerts.
8. Integration with Billing: The system should integrate with FedEx's billing system to generate accurate invoices based on package deliveries.
9. Package History: Users should be able to view their package history, including past shipments and delivery dates.
10. User Feedback: Users should have the ability to provide feedback on the tracking experience, and this feedback should be collected and analyzed.

**Non-Functional Requirements:**

1. Response Time: Define acceptable response times for package tracking queries, ensuring that users receive timely updates on their packages.
2. Availability: The system should be available 24/7 with minimal downtime for maintenance or updates.
3. Security: Implement robust security measures to protect sensitive package information, including encryption, access controls, and regular security audits.
4. Scalability: The software should be scalable to accommodate future growth in package volume and user traffic.
5. Usability: Ensure an intuitive and user-friendly interface for both FedEx employees and customers, with accessibility considerations.
6. Performance: The system should be able to handle a high volume of package tracking requests simultaneously without significant performance degradation.
7. Aesthetic: pertains to the visual appearance and design of the user interface. Design a page in such a way that it should attract the customer to the page with proper font sizes and images.

**REQUIREMENTS ANALYSIS:**

A diagram of a fedex package

Description automatically generated

Use-case model of **packTrack**

The requirements listed in the previous response are generally well-defined, there are a few areas where ambiguities or inconsistencies could be clarified:

**a. User Registration and Authentication:**

Clarification: Specify the minimum requirements for user registration (e.g., mandatory fields, password complexity rules like at least 8 digits with one special character) and the authentication method (e.g., username and password, multi-factor authentication).

**b. Package Registration:**

Clarification: Define the specific data fields required for package registration, such as sender and recipient information with must zip code, and package contents. Ensure consistency in data formats (e.g., address format) and tracking should be exact 15 digits.

**c. Real-Time Tracking:**

Clarification: Describe how frequently real-time updates should be provided (e.g., every 30 minutes, hourly) and the expected accuracy of location data (e.g., within 100 meters).

**PRIORITIZATION:**

**MoSCow method:**

* **Must Have:** These are critical requirements without which the system cannot function effectively.

1. User Registration and Authentication
2. Package Registration
3. Real-Time Tracking
4. Package Status Updates
5. Route Optimization
6. Package Search
7. Package History
8. Security

* **Should have:** These are important requirements that enhance the system's value but are not critical for basic functionality.

1. Notification Preferences
2. Integration with Billing
3. Scalability
4. Aesthetic

* **Could have:** These requirements are desirable but not necessary for the core functionality. They may be considered for future enhancements.

1. User Feedback

* **Won’t have:** These requirements are explicitly excluded from the current scope of the project.

None listed in the original requirements.

Prioritizing requirements in this manner allows the development team to focus on the most critical elements that are essential for the initial release of the Package Tracker software.

**REFLECTION:**

Q1) What challenges did you encounter during requirements gathering and analysis?

* During requirements gathering and analysis, several challenges can arise, including:
* **Changing Requirements**: Stakeholders' needs and priorities may change over time, leading to scope creep or frequent updates to the requirements.
* **Varying Stakeholder Perspectives**: Different stakeholders may have conflicting requirements or varying expectations, which must be reconciled.
* **Incomplete Information**: Some stakeholders may not provide all the necessary information initially, leading to gaps in the requirements.
* **Technical Constraints**: Technical limitations or constraints may impact the feasibility of certain requirements.
* **Communication Challenges**: Gathering requirements from a diverse group of stakeholders can be challenging, particularly if they have different communication styles.

Q2) How did prioritizing requirements influence your perspective on the software project?

* Prioritizing requirements helps focus the development effort on the most critical and valuable features. It forces us to identify the "must-haves" and differentiate them from the "nice-to-haves." This perspective can:
* Ensure that essential functionalities are addressed first, reducing the risk of project delays or failure.
* Provide clarity on what can be deferred to future phases or releases, enabling efficient resource allocation.
* Help manage stakeholder expectations by aligning project goals with available resources and timelines.
* Promote a more systematic and organized approach to development, improving project management.

Q3) Why do you think proper documentation is crucial in software development?

* Proper documentation is crucial in software development for several reasons:
* **Communication**: It serves as a common reference point for all stakeholders, facilitating clear and consistent communication about project requirements, design, and functionality.
* **Knowledge Transfer**: Documentation ensures that knowledge is not tied to individuals but is accessible to the entire development team. It aids in onboarding new team members.
* **Change Management**: It provides a historical record of decisions and changes, helping teams understand the evolution of the project and its rationale.
* **Quality Assurance**: Documentation aids in testing and quality assurance efforts by providing test cases, expected outcomes, and specifications.
* **Regulatory Compliance**: In industries with regulatory requirements (e.g., healthcare, finance), documentation is often necessary to demonstrate compliance with standards.
* **Maintenance and Support**: It assists in troubleshooting, maintenance, and support by providing insights into the system's architecture and behavior.

Q4) How might stakeholder involvement change or influence the requirements?

* Stakeholder involvement plays a critical role in shaping requirements throughout the software development process. It can lead to changes or influence requirements in various ways:
* **Clarification**: Stakeholders can provide additional details or clarify ambiguities in requirements, ensuring a better understanding of their needs.
* **Priority Adjustment**: Based on stakeholder feedback and changing business needs, requirements' priorities may be adjusted to reflect current priorities.
* **Scope Changes**: Stakeholders may introduce new features or change existing ones as they gain a deeper understanding of the project's potential.
* **Trade-Offs**: Stakeholders may influence decisions about trade-offs between features, cost, and schedule, guiding the project's direction.
* **User Experience**: Stakeholder involvement can lead to improvements in the user experience by refining usability, accessibility, and aesthetic aspects of the software.
* **Risk Mitigation**: Stakeholders can identify and address potential risks early in the project, leading to changes in requirements aimed at reducing risks.
* **Alignment with Business Goals**: Continuous stakeholder involvement ensures that the project remains aligned with evolving business goals and strategies.