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**Cargo Booking System**

**Requirement Specification Report**

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7. **Introduction**

A cargo booking system is a valuable tool for people in the logistics and transportation industry, as well as individuals who need to ship goods. With the rise of e-commerce and globalization, the demand for efficient and reliable shipping solutions has never been higher. A cargo booking system streamlines the process of scheduling and managing shipments, reducing the time and effort required to handle each shipment. This results in increased efficiency and cost savings, as well as improved customer satisfaction due to faster delivery times and better tracking options. Furthermore, a cargo booking system provides real-time updates and notifications, giving users up-to-date information on the status of their shipments. With these benefits, a cargo booking system can help individuals and businesses to grow and succeed in today's fast-paced, globalized world.

* 1. Purpose

The primary purpose of a cargo booking system is to streamline the process of scheduling and managing shipments, from the point of booking to delivery. The system will provide a centralized platform for users to easily book shipments, track their progress, and receive updates on delivery times. Additionally, the cargo booking system is designed keeping in view the below mentioned goals:

1. **Increase efficiency:** The system automates many manual processes and reduce the time and effort required to handle each shipment, making the entire shipping process more efficient.
2. **Reduce costs:** By automating many manual tasks and reducing errors and inefficiencies, the cargo booking system will help to lower shipping costs.
3. **Improve customer satisfaction:** With real-time tracking and delivery updates, a cargo booking system will help to improve the customer experience and increase customer satisfaction.
4. **Enhance visibility and control:** The system will provide complete visibility into the status of shipments, allowing users to monitor their progress and make informed decisions.
5. **Support compliance and regulations:** The cargo booking system will comply with industry regulations and standards and provide necessary information to support compliance.
   1. Project Scope

The scope of a cargo booking system varies depending on the specific requirements and goals of the user. However, our cargo booking system includes the scope of following features and functionality:

1. **Booking and Scheduling:** The system will allow users to easily book shipments and schedule delivery times. This will include the ability to select shipping routes, select carriers, and specify shipping instructions.
2. **Tracking and Monitoring:** The system will provide real-time tracking and monitoring of shipments, allowing users to track the status of their cargo from pickup to delivery.
3. **Documentation Management**: The system will provide a centralized repository for all shipment-related documents, such as invoices, packing slips, and bills of lading.
4. **Reporting and Analytics:** The system will provide robust reporting and analytics capabilities, allowing users to analyze their shipping history and identify trends and patterns.
5. **Carrier Management:** The system will provide tools for managing carriers, including the ability to add, edit, and delete carriers, as well as manage carrier rates and contracts.
6. **Customer Management:** The system will provide tools for managing customers, including the ability to add, edit, and delete customers, as well as view customer order history and shipping details.
   1. **Definitions, acronyms and abbreviations (Glossary/Terminologies)**

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| **Terminology** | **Definition** |
| **User** | A user is an individual who uses a software application or system. |
| **SRS** | SRS stands for Software Requirements Specification. It is a document that outlines the requirements for a software system and includes details about the functional and non-functional requirements of the system, the user requirements, and the constraints and limitations of the system. |
| **System** | A system is a collection of components that work together to achieve a specific goal or set of goals. |
| **GPS** | Global Positioning System, a satellite-based navigation system that provides location and time information. |
| **User Interface** | The way that a user interacts with a software application, including the visual design and the way that the user interacts with the application. |
| **User Experience** | The overall experience that a user has when using a software application, including the user interface, the functionality of the application, and the ease of use. |

1. **Description**

A cargo booking system software is a specialized tool designed to simplify and streamline the process of scheduling and managing cargo shipments. This software provides a centralized platform for users to book and track shipments, making it easy to manage logistics and supply chain operations. The system is designed with an intuitive interface, allowing even non-technical users to quickly and easily schedule shipments, view shipping details, and receive real-time updates on the status of their cargo. Additionally, the software integrates advanced tracking and analysis tools, providing in-depth insights into the performance of shipments and enabling users to make informed decisions about future deliveries. With its automation capabilities, a cargo booking system software will help businesses and individuals save time, reduce costs, and improve the overall efficiency of their shipping operations

* 1. **Project Perspective**

From a project perspective, a cargo booking system is designed to meet the needs of both the customers who are booking shipments and the carriers who are transporting the shipments. The system is easy to use, reliable, and efficient, and it provides customers with a seamless experience from start to finish. The project will take into account the technical requirements of the system, such as compatibility with existing systems and platforms, security, and performance. The project is plan and execute in a manner that is consistent with industry standards and best practices, and it includes regular testing and quality assurance processes to ensure that the system meets the requirements and specifications. It considers the long-term goals and objectives of the cargo booking system, such as scalability, growth, and sustainability. The system will be designed with the future in mind, and it is flexible enough to accommodate changes and upgrades as needed over time.

1. **Requirement Specification**

This section includes all the details of requirement specifications based on which our Cargo Booking System application will be built.

* 1. **Functional Requirements**
     1. **User Registration and Login:** Users will be able to easily create an account and log into the system to access their shipping information and manage their shipments.
     2. **Booking and Scheduling:** Users will be able to easily schedule shipments, select shipping routes, select carriers, and specify shipping instructions.
     3. **Tracking and Monitoring:** The system will provide real-time tracking and monitoring of shipments, allowing users to track the status of their cargo from pickup to delivery.
     4. **Documentation Management:** The system will provide a centralized repository for all shipment-related documents, such as invoices, packing slips, and bills of lading.
     5. **Reporting and Analytics:** The system will provide robust reporting and analytics capabilities, allowing users to analyze their shipping history and identify trends and patterns.
     6. **Customer Management:** The system will provide tools for managing customer information, including the ability to view customer order history and shipping details.
     7. **Route Planning and Scheduling:** The system will allow users to plan and schedule routes for cargo transportation based on factors such as delivery schedules, cargo types, and transit times.
     8. **Quotation and Booking Management:** The system will allow users to create and manage quotations for cargo transportation and convert them into bookings.
     9. **Integration with Other Systems:** The system will be designed to integrate with other systems and software, such as enterprise resource planning (ERP) systems, accounting systems, and warehouse management systems.
     10. **Predictive Analytics:** The system will provide predictive analytics capabilities, such as the ability to forecast demand, predict shipping times, and proactively manage risks. This will help organizations make informed decisions and improve their overall efficiency.
     11. **Carrier Network Management:** The system will provide a way to manage and optimize the organization's carrier network, including the ability to rate carriers based on factors such as performance, cost, and capacity.
     12. **Payment Processing:** The system will support secure payment processing, allowing users to easily pay for their shipments.
     13. **Supply Chain Collaboration:** The system will provide a way to collaborate with other members of the supply chain, including suppliers, manufacturers, and customers.
     14. **Freight Management:** The system will provide a way to manage the various costs associated with cargo transportation, including the ability to calculate freight rates, track expenses, and generate reports.
     15. **Customer Support:** The system will provide access to customer support, including help with booking shipments, tracking shipments, and resolving any issues that may arise.
  2. Non-Functional Requirements

This part includes the Non-Functional Requirements of the Cargo Booking System:

* + 1. **Performance Requirements**

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| **Performance Requirements** | **Description** |
| **Scalability** | As the volume of cargo increases, the system will be able to handle a large number of bookings and shipments without slowing down or crashing. |
| **Speed and Responsiveness** | The system will be fast and responsive, allowing customers to book and manage shipments quickly and easily. |
| **Reliability** | The system will be reliable and available 24/7, so that customers can access it whenever they need to. |
| **Reporting and Analytics** | The system will provide robust reporting and analytics capabilities, so that businesses can track their shipments, monitor performance, and make data-driven decisions. |
| **User-friendliness** | The system will be easy to use, with a user-friendly interface that allows customers to book and manage shipments quickly and easily. |

* + 1. **Security Requirements**

A cargo booking system is a critical component of the supply chain management system, and it is essential that it is secure and protects sensitive information.

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| **Security Requirements** | **Description** |
| **Confidentiality** | The system will protect sensitive information, such as customer data, shipment details, and financial information, from unauthorized access |
| **Authentication** | The system will provide secure authentication processes, to ensure that only authorized users are able to access sensitive information. |
| **Access control** | The system will provide robust access control mechanisms, to ensure that users can only access the information and functionality that they need. |
| **Compliance** | The system will comply with relevant security regulations and standards, such as GDPR, PCI-DSS, and HIPAA. |
| **Payment Security** | The system will use a secure payment gateway system that complies with relevant security standards, such as PCI DSS. Encrypt payment information and store it in a secure database. |

* + 1. **User Experience Requirements**

The user experience requirements for a cargo booking system will be designed to provide a seamless, efficient, and enjoyable experience for customers. Here are some of the key user experience requirements for our cargo booking system:

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| **User Experience Requirements** | **Description** |
| **Usability** | The system will be easy to use, with a user-friendly interface that allows customers to book and manage shipments quickly and easily |
| **User Interaction** | The system will provide an interactive experience for customers, allowing them to engage with the system in a meaningful and intuitive way |
| **Accessibility** | The system will be accessible to all customers, regardless of their abilities or disabilities |
| **Design** | The system will have an aesthetically pleasing design that is visually appealing and easy to navigate |
| **Notifications and Alerts** | The system will provide notifications and alerts, so that customers are kept informed of any changes to their shipments, such as delivery delays or updates to the estimated delivery time. |

* + 1. **Technical Requirements**

Technical requirements for a cargo booking system will include:

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| **Technical Requirements** | **Description** |
| **Platform Compatibility** | A cargo booking system will be compatible with different platforms, including desktop and mobile devices, to accommodate the diverse needs of users. |
| **Technical Support** | The cargo booking system will come with technical support from the vendor, including software updates and bug fixes. |
| **Data management** | The system will be able to store, manage, and retrieve large amounts of data related to cargo shipments, including shipment details, customer information, and billing information. |
| **Integration with shipping providers** | The system will be able to integrate with multiple shipping providers to facilitate the booking and scheduling of cargo shipments. |
| **Payment processing** | The system will have the ability to process payments for cargo shipments, including credit card and bank transfers. |

1. Characteristics
   1. **Operating Environment**

The operating environment for a cargo booking system is the set of conditions under which the system is expected to function. The following are some of the key factors that are considered while defining the operating environment for a cargo booking system:

1. **Platform Compatibility:** The system will be compatible with the platforms and devices that its users are likely to use, such as desktop computers, laptops, tablets, and smartphones.
2. **Network Connectivity:** The system will have robust network connectivity, ensuring that it can be used by users even in areas with limited or unreliable internet connectivity.
3. **Operating System:** The system will be compatible with the operating systems that its users are likely to use, such as Windows, macOS, iOS, and Android.
4. **Environmental Conditions:** The system will be designed to operate in a variety of environmental conditions, such as extreme temperatures, high humidity, and vibration.
5. **Regulatory Compliance:** The system will be designed to comply with any relevant regulations and standards, such as data privacy and security regulations.
   1. **Constraints**

There are several constraints that may impact the development and implementation of a cargo booking system. These constraints can impact the functionality, performance, and user experience of the system. Some of the possible constraints for a cargo booking system are:

1. **Technical Constraints**: Technical constraints may include the limitations of existing software, hardware, and network infrastructure. The system may be limited by the capabilities of the technology that it is built on, such as the availability of APIs, the performance of databases, or the reliability of network connectivity.
2. **Budget Constraints:** Budget constraints can impact the development and implementation of a cargo booking system by limiting the resources that are available for the project. The system may need to be developed and implemented with limited funding, which can impact the quality and functionality of the final product.
3. **Time Constraints:** Time constraints can impact the development and implementation of a cargo booking system by limiting the amount of time that is available for the project. The system may need to be developed and implemented within a tight deadline, which can impact the quality and functionality of the final product.
4. **Legal and Regulatory Constraints:** Legal and regulatory constraints may include data privacy laws, security regulations, and other regulations that impact the development and implementation of the system. The system may need to be developed and implemented to comply with these regulations, which can impact the design and functionality of the system.
5. **Data Constraints:** Data constraints may include limitations on the amount and type of data that can be collected and stored by the system. The system may need to be developed and implemented to take into account data privacy and security regulations, which can impact the design and functionality of the system.
   1. **Assumptions and Dependencies**

Assuming and managing dependencies is an important part of the software development process for a cargo booking system. The following are some of the possible assumptions and dependencies for the system:

1. Carrier Availability: It is assumed that the carriers listed in the system are available and willing to transport the cargo. In the event that a carrier is unavailable, this could impact the shipment and the system will have contingency plans in place.
2. Shipping Routes: The system assumes that the shipping routes specified by the carriers are accurate and up-to-date. In the event that shipping routes change, the system will have a process for updating this information.
3. Payment Processing: The system assumes that payment processing systems, such as credit card processors and bank transfer systems, are available and functioning properly. In the event that payment processing systems are unavailable, this could impact the ability of users to book shipments.
4. Carrier Rates: The system assumes that the carrier rates listed in the system are accurate and up-to-date. In the event that carrier rates change, the system will have a process for updating this information.
5. Carrier Performance: The system assumes that the carriers listed in the system have a track record of performance that meets the standards of the users. In the event that a carrier performs poorly, the system will have a process for updating carrier performance information.
6. Shipping Regulations: The system assumes that the shipping regulations specified by the carriers are accurate and up-to-date. In the event that shipping regulations change, the system will have a process for updating this information.
7. Integration with External Systems: The system assumes that the integration with external systems, such as ERP and CRM systems, will function as expected. In the event that integration with external systems is not successful, this could impact the ability of the system to provide complete and accurate information.
8. Technical Support: The system assumes that technical support from the vendor is available and responsive. In the event that technical support is unavailable, this could impact the ability of the system to function properly.
9. Data Backup and Recovery: The system assumes that the data backup and recovery procedures are functioning properly. In the event of a data loss, this could impact the ability of the system to provide complete and accurate information.
10. Conclusion

In conclusion, a cargo booking system is a critical tool for businesses and individuals looking to streamline the shipping and delivery of goods. With its ability to automate many of the tasks involved in booking cargo shipments, such as request generation, location tracking, and payment processing, a cargo booking system can help improve efficiency, reduce costs, and increase customer satisfaction. To meet the needs of its users, a cargo booking system will include a range of functional and non-functional requirements, including user and driver registration and login, ride requests, maps integration, real-time location tracking, fare estimation, secure payments, and user feedback. A well-designed and implemented cargo booking system can provide significant benefits for all parties involved in the shipping and delivery of goods, making it a valuable tool for businesses and individuals alike.

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**Group – D:**

**Group Members:**

**Zafar Ali BSCE20040**

**Shayan Ali BSEE21041**

**Khizer Subab BSEE21069**

**Waqas Afzal BSEE21079**

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