Министерство образования и науки Республики Казахстан

Astana IT University

ОТЧЕТ

О выполнении программы производственной практики

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Образовательная программа: Computer Science

Группа: IT-1901

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Introduction

The internship was completed at the “National company “Kazakhstan Temir Zholy”

The object of the research is the National company “Kazakhstan Temir Zholy” in the city of Nur-sultan.

Research subject - development of a system for managing and tracking the transportation of baggage and cargo by rail.

The purpose of the work is designed to transition from the old Express control system to modern IT solutions to improve efficiency and simplify business processes; take into account all the specifics and deploy a fully functioning system for further trial operation.

The structure of the work is determined by the tasks that contribute to the achievement of the goal:

1) Analysis and interpretation of the ticket sales database
2) Collection of data on the stations of reception and transfer of baggage
3) Development of design and prototype of the application and website for sending luggage
4) Development of the backend and frontend for the application and website
5) Software presentation

The National company “Kazakhstan Temir Zholy” is a transport and logistics company that operates Kazakhstan's principal railway network and serves as a national railway carrier for goods and people. The firm implements infrastructure projects within the framework of the state. The "Nurly Zhol" program contributes to the implementation of the "100 Concrete Steps" National Plan, continues to modernize transportation assets, and contributes to the institutional development of international transportation corridors and the removal of non-physical barriers to movement.

Railways have become a backbone component for Kazakhstan's socioeconomic development in recent years. To increase the country's export and transit potential, a number of railway lines were established. Along the railway lines, new stations were built, as well as the requisite social infrastructure, communities were built, and industries arose and developed. The commissioning of new lines offered internal contacts across the regions and provided a tremendous boost to regional growth. The railway network offered transport communications and trade between Kazakhstan and the rest of the world, connecting all regions of the nation with transportation arteries.

Lines of “Kazakhstan Temir Zholy”

- Backbone railway network services;
- Freight transportation;
- Passenger transportation;
- Transportation and logistics services;
- Operating freight wagon fleet

Corporate Values

Sustainable development and shared prosperity are immutable ideals of the Company's corporate culture, as are environmental protection, health and safety at work, transportation process safety, information security, and energy efficiency.

All Company personnel divide such values as:

- Safety - Employees' health and safety, as well as the safety of freight and luggage, are all priorities. This is a major concern. Even the tiniest blunder may cost a lot of money.

- Leadership - Everyone is respected and valued, regardless of their position, occupation, or personal interests.
- Ambitions - All problems and challenges are met with dignity, and any hurdles in the firm's path are constantly conquered, because the well-being of clients is dependent on the company, whose interests and requirements are the top priority.
- Pride - The firm, which is proud of its profession, delivers important items to the public, connects cities and states, and works even in the most distant parts of the country.
- Responsibility - It is the industry leader in the transportation services business, the firm delivers high-quality services to all clients. By producing accomplishments under the most challenging of circumstances.

Strategic goals:

1) Ensure financial stability by removing the company from the financial danger zone
2) Enhance the company's efficiency
3) Customer satisfaction is increasing
4) Ensure that rail movement is safe
5) Assuring the company's long-term success

IT Strategies JSC “NC “Kazakhstan Temir Zholy”

The National Company Kazakhstan Temir Zholy JSC's (hence referred to as the IT Strategy) information technology development strategy spans the planned horizons of 2022 and 2026.

IT is an intrinsic component of the business. IT is responsible for providing current IT services to business divisions in accordance with railway industry best practices, innovations, and new technology.

Increasing the degree of integration, standardization, and unification of IT systems and infrastructure, as well as their modernization, in order to increase the efficiency and effectiveness of business operations in order to ensure the Company's and its subsidiaries' long-term success.

The purpose is determining strategic directions for IT development, ways to generating IT solutions, and technologies that aid in the attainment of the Company's strategic goals.

Student’s activity

The goal of the project was to develop automation for Passenger Transportation JSC's baggage and freight luggage acceptance and processing operations.

To start this project, we assembled a team and assigned everyone their role in the work. I was developing a mobile application and writing web interfaces for the website. The user interface was designed for the client, the transceiver and the cashier.

First of all, we got acquainted with the real process and work at the baggage station itself. The workers showed our team how the baggage is processed and sent. We analyzed several cases, and noticed that the workers really have a lot of journals and records that were entered manually and in writing.

After that, we started to brainstorm and discuss the whole plan in order to understand the scope of work for the implementation of the project. We had compiled the documentation and description of whole business process, which I want to share in detail.

The client weighs his cargo on specially installed digital scales, under the supervision of the Acceptor at the station. The scales transmit the weight of the load (a pre-configured metric for measuring the scales) to the general system. An Order is created in the system with the status "New order". The transceiver at the station fills in the direction of the cargo from the directory (according to the client) and determines the tariff for the cargo. Further agrees (consults) the calculated amount of payment with the Client to approve the order. If the Client agrees on the conditions of transportation and the amount of transportation, the Order receives the status of "Unpaid Order" and is sent through the system to the cashier's employees. Barcodes are generated for cargo attachment. The receiving agent sticks barcodes on the cargo and takes the cargo to a specially marked area of the warehouse for orders with the status "Unpaid order". The client comes to the cashier, where the cashier has office equipment with an installed information system. The cashier sees all generated orders. The client provides an identity document and pays the amount for cargo transportation services. Or if the client has an advance payment for the service, then the cashier marks the write-off of the

amount from the prepayment. The cashier issues a fiscal receipt and a form with the completed order to the Client. Order status changes to "Paid Order".

An employee of the baggage compartment/point must have a register of all paid and unpaid orders . The order should automatically determine the number of the train through which the cargo will be transferred. But manual determination of the train number should also be considered. When sending the cargo, the Responsible person of the train must scan the barcodes on the cargo, and the system automatically confirms the acceptance of the cargo on the train. If the order consists of several cargoes, then the acceptance of the cargo for the order will be confirmed after scanning each cargo from the list. After that, the status of the order changes to "On the way". When unloading cargo from a train to a warehouse, the same actions are performed as when sending cargo from a warehouse. The receiver-receivers at the station of the destination of the cargo must confirm receipt of the cargo / order by scanning each cargo through a bar code. After the shipment is scanned, the order status is changed to "The order is in the warehouse of the destination"

The client must have an order form issued by the cashier. Through the QR code, it should be possible to track the transportation of goods (order status) The client should be able to enter his personal account through the specified code on the order form. All historical orders/shipments are available in your personal account.

The order indicates who will receive the goods at the destination, indicating the IIN / BIN. The Client or the Receiving Representative provides an identity document The transceiver at the station releases the cargo and the status of the order changes to the "Issued" state.

The information system consists of modules:

- Interface for the cashier;
- Interface for the Transceiver;
- Personal account of the client;
- Financial service;
- Tuning module

Interface for the cashier

When you enter the system, a register of applications with the statuses "Unpaid order" and "Paid order" is displayed.

On the left side of the interface there is a page selection menu: All orders - displays the entire list of orders; Paid - displays all orders with the status "Paid order"; Unpaid - displays all orders with the status "Unpaid order"; Reports – page for uploading reports.

The order card contains the following fields: IIN, Cargo weight, Direction, Recipient and Baggage status. Also, a button to transfer the status from Unpaid order to Paid order.

On the Reports page, there is a filter for displaying applications and the ability to unload them by clicking on the button.

Interface for the Transceiver

The interface of the transceiver is similar to the interface of the Cashier, the difference is that there are additional statuses: “On the way”, “At the station”, “Sent”, “Received”. It is important to note that in the interface, the transceiver cannot change the status of paid and unpaid orders.

Client Interface

When you log in, information about the application from the application form is displayed. On the left side of the interface there is a page selection menu: Profile - displays the entire list of orders; Closing - displays all previously completed orders with status; In progress - displays all applications that are being processed;

Recommendation

To increase the efficiency of transportation process management, digital information solutions and automated systems should be implemented. IT systems will make it easier to communicate with shippers. Implement a paperless document handling system for transportation. The official ticketing website has a number of cons that need to be thought about and corrected.

IT solutions will improve railway traffic safety by increasing the route speed of transit trains, locomotives, and wagons, reducing the number of stops and time required for technical inspections along the way. An automated system for monitoring the condition of rolling stock will be implemented as part of the system. It will provide centralized management, collecting, and processing of rolling stock data, as well as the presentation of data on dispatchers' automated workstation displays.

According to Kanat Kobesov, Deputy General Director of KTZ-Freight Transportation LLP, he discussed the automated methods that are employed in the train transit process and the business has no future without IT

Conclusion

As a result of the internship, the task and the objective were settled, proficient capabilities were obtained.

Throughout the work, goals were set for each week for project implementation. Additional information about enterprise was obtained from the official website of “NC “Kazakhstan Temir Zholy”.

Recommendations are given for enterprise rationalization, the key to raising the efficiency of transportation process management lies in digitalization. One of the examples was our project, which was aimed at Passenger transportation is to develop the automation of processes for receiving baggage and cargo baggage handling.

The knowledge, competences, and skills gained during the practice period were an excellent motivator for active participation in the development of a future specialized field.

References

Railways.kz. (n.d.). Retrieved May 2, 2022, from https://railways.kz/articles/company