FINAL PROJECT REPORT

Metro Ticket Generating System using ServiceNow

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1. INTRODUCTION

Urban transportation systems play a vital role in modern society, and metro rail services are one of the most efficient modes of public transport. With increasing passenger traffic, traditional ticketing methods such as manual counters and standalone vending machines often lead to long queues, delays, and operational inefficiencies. To overcome these challenges, there is a strong need for a digital, automated, and centralized ticketing solution.

The **Metro Ticket Generating System using ServiceNow** is designed to automate the process of ticket generation, improve passenger convenience, and enhance administrative control. This project is developed as part of a ServiceNow academic curriculum and demonstrates the practical application of ServiceNow platform features such as Service Catalog, Flow Designer, custom tables, reports, and dashboards.

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2. PROJECT OVERVIEW

2.1 Project Description

The Metro Ticket Generating System is a web-based application developed on the ServiceNow platform. It allows passengers to generate metro tickets digitally by selecting source and destination stations. The system automatically calculates fare, generates a unique ticket ID, and stores ticket details in a centralized database.

2.2 Project Objectives

- To automate metro ticket generation using ServiceNow
- To reduce manual intervention and waiting time
- To ensure accurate and fast fare calculation
- To provide centralized ticket data management
- To demonstrate ServiceNow development skills

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3. SYSTEM METHODOLOGY

The project follows a structured software development methodology consisting of:

1. Ideation Phase
2. Project Planning Phase

3. Requirement Analysis Phase
4. Project Design Phase
5. Development Phase
6. Testing Phase
7. Deployment and Maintenance Phase

Each phase is carefully executed to ensure system quality, scalability, and academic compliance.

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4. SYSTEM ARCHITECTURE

The system is built on a centralized ServiceNow architecture.

Architecture Components

- **User Layer**: Passengers and administrators access the system via ServiceNow Service Portal
- **Application Layer**: Service Catalog, Flow Designer, Business Rules
- **Data Layer**: Custom ServiceNow tables for tickets, stations, and fares
- **Reporting Layer**: Reports and dashboards for monitoring

This architecture ensures modularity, security, and ease of maintenance.

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5. MODULE DESCRIPTION

5.1 Ticket Booking Module

- Service Catalog item for metro ticket booking
- User selects source and destination stations
- Fare is calculated automatically
- Ticket request is submitted

5.2 Ticket Management Module

- Stores ticket details in a custom table
- Generates unique ticket ID
- Tracks ticket status

5.3 Admin Management Module

- Manage stations and fare details
- View and monitor ticket requests
- Generate reports

5.4 Reporting and Dashboard Module

- Daily and route-wise ticket reports
- Ticket usage analytics

• Administrative dashboard

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6. TECHNOLOGY STACK

Component	Technology
Platform	ServiceNow
Frontend	Service Portal
Backend	Flow Designer, Business Rules
Database	ServiceNow Tables
Reporting	ServiceNow Reports & Dashboards

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7. DEVELOPMENT AND IMPLEMENTATION

The system is implemented using ServiceNow best practices.

Key Implementation Steps

- Created a scoped application
- Designed custom tables for metro ticket data
- Configured Service Catalog items
- Developed workflows using Flow Designer
- Implemented role-based access control
- Configured notifications and reports

The development phase focused on simplicity, accuracy, and reliability.

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8. TESTING AND VALIDATION

Multiple testing techniques were applied:

Testing Types

- Functional Testing
- System Testing
- Performance Testing
- User Acceptance Testing

Testing Outcome

- All functional requirements met
- Accurate fare calculation
- Stable system performance
- Successful user validation

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9. PERFORMANCE ANALYSIS

The system was tested under different load conditions to evaluate response time and stability.

- Handles multiple ticket requests efficiently
- Minimal response delay
- No data inconsistency observed

Performance testing confirms the system’s readiness for real-world usage.

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10. SECURITY FEATURES

- Role-based access control
- Secure data storage
- Restricted admin functionalities
- Platform-level security provided by ServiceNow

These measures ensure data confidentiality and system integrity.

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11. LIMITATIONS

- No real-time payment gateway integration
- No physical ticket printing
- Limited to ServiceNow environment

These limitations are due to academic scope constraints.

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12. FUTURE ENHANCEMENTS

- Integration with online payment gateways
- QR code-based ticket verification
- Mobile application support
- Real-time metro scheduling integration

Future enhancements can make the system production-ready.

13. CONCLUSION

The **Metro Ticket Generating System using ServiceNow** successfully demonstrates how the ServiceNow platform can be used beyond IT service management to build real-world business applications. The system automates metro ticket generation, improves efficiency, and enhances user experience.

This project fulfills all academic objectives and provides hands-on experience with ServiceNow application development, making it a valuable learning outcome.

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14. REFERENCES

1. ServiceNow Official Documentation
2. ServiceNow Developer Portal
3. Software Engineering Textbooks
