

Income Tax Payment System

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Abstract: Tax administration is an essential part of public financial management, ensuring efficient revenue collection and transparent government services. However, traditional income tax payment processes often involve manual paperwork, long waiting times, and inefficient data management, creating difficulties for both taxpayers and tax officers. This project presents the development of an Income Tax Payment System, a web-based solution designed to simplify taxpayer registration, income declaration, tax assessment, payment receipt generation, and online payment processing. The system enables taxpayers to submit information electronically while allowing administrators and staff to verify declarations, approve tax payments, and monitor payment records efficiently. The implementation of this system is expected to improve service quality, reduce processing time, minimize human errors, and enhance transparency in tax administration. Overall, Income Tax Payment System contributes to the digital transformation of public services by providing a secure, reliable, and user-friendly platform for income tax management.

Keywords: income tax payment system, tax calculator, web-based solution, e-government, internal revenue department

INTRODUCTION

An Income Tax Payment System is a web-based application developed to improve the efficiency of income tax administration by providing digital services for taxpayers and tax officers. The system enables taxpayers to register, submit income declarations, receive tax assessment results, generate payment receipts and complete tax payments online. Administrators and staff can verify taxpayer information, approve declarations, monitor payments, and generate reports using a centralized database. The primary objective of the system is to simplify tax-related processes, reduce paperwork, improve service accessibility, and enhance transparency and accuracy in tax management.

PROBLEM

The traditional income tax payment process at the Internal Revenue Department mainly depends on manual procedures, which require taxpayers to visit the tax office for registration, declaration submission, and payment processing. These manual operations consume considerable time, increase paperwork, and may lead to data duplication, processing delays, and human errors. In addition, tracking taxpayer records and payment information becomes difficult due to the lack of a centralized digital system. These challenges reduce operational efficiency and affect the quality of public services. Therefore, a secure and efficient online income tax payment system is required to automate tax administration, improve data management, and provide convenient services for both taxpayers and tax officers.

APPROACH

The Income Tax Payment System has three main roles: User, Staff, and Admin. Each role has different permissions and responsibilities to ensure secure and efficient management of income tax services. As shown in Figure 1(a), the user must register an account and wait for staff approval before accessing the system. After successful login, taxpayers can submit income declarations, make pre-tax or current-year tax payments, upload payment information, view payment status, and print approved payment receipts. The system also provides a tax calculator to help taxpayers estimate their income tax before making a payment.

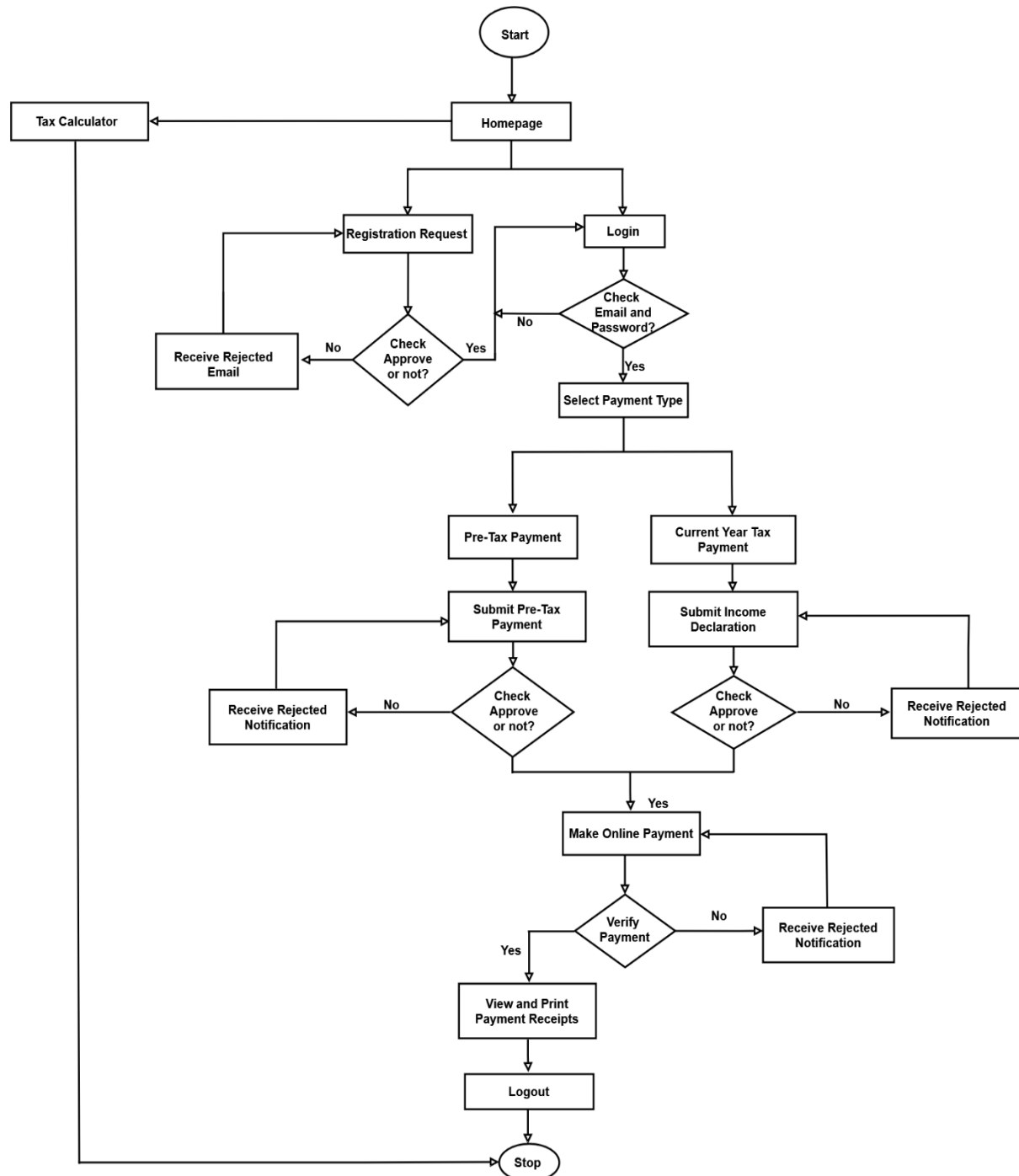


Figure 1(a). System Flow Diagram for User

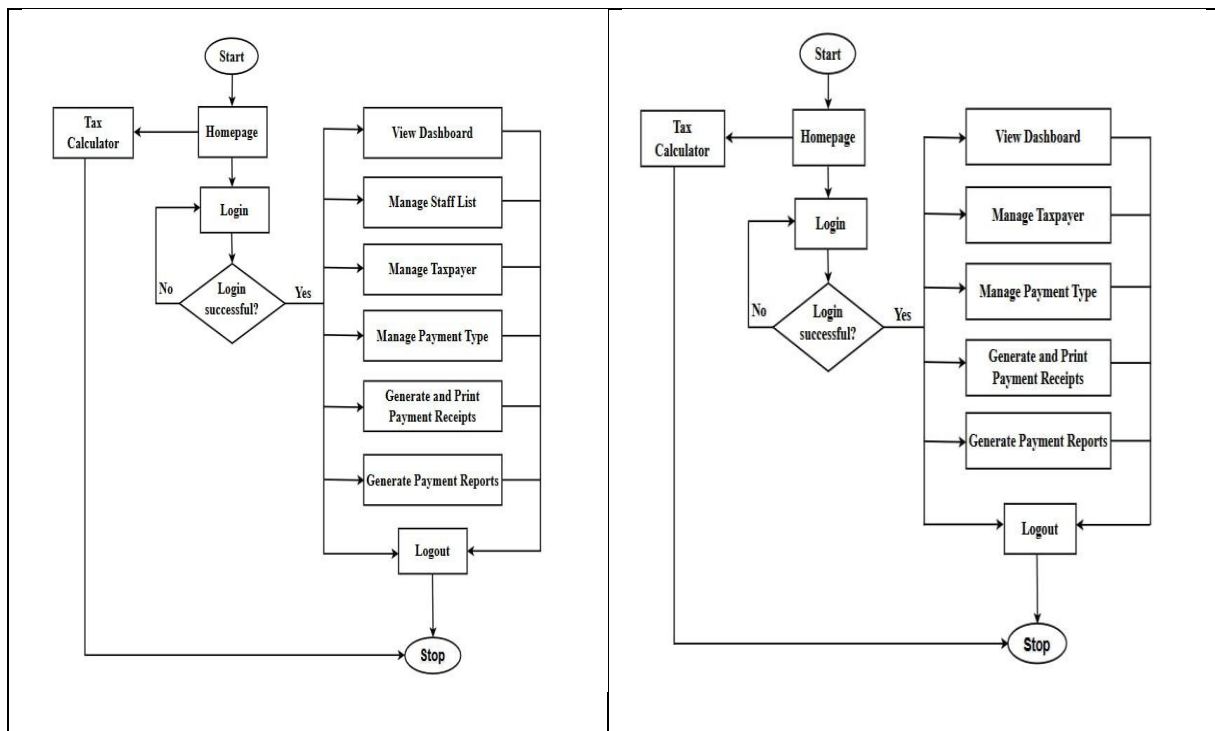


Figure 1(b). System Flow Diagram for Admin

Figure 1(c). System Flow Diagram for Staff

As shown in Figure 1(b) and 1(c), an Admin has higher-level management privileges. Admin can view the dashboard, manage staff accounts, manage taxpayer records, manage payment types, monitor tax transactions, generate and print payment receipts, and generate payment reports. These role-based permissions help maintain system security, data accuracy, and efficient income tax administration. The Staff is responsible for reviewing and processing taxpayer-related requests. Staff can manage taxpayer registration requests, review income declarations, assess tax information, verify payment submissions, approve or reject requests, and provide rejection reasons when necessary. Staff can also generate and verify payment-related documents.

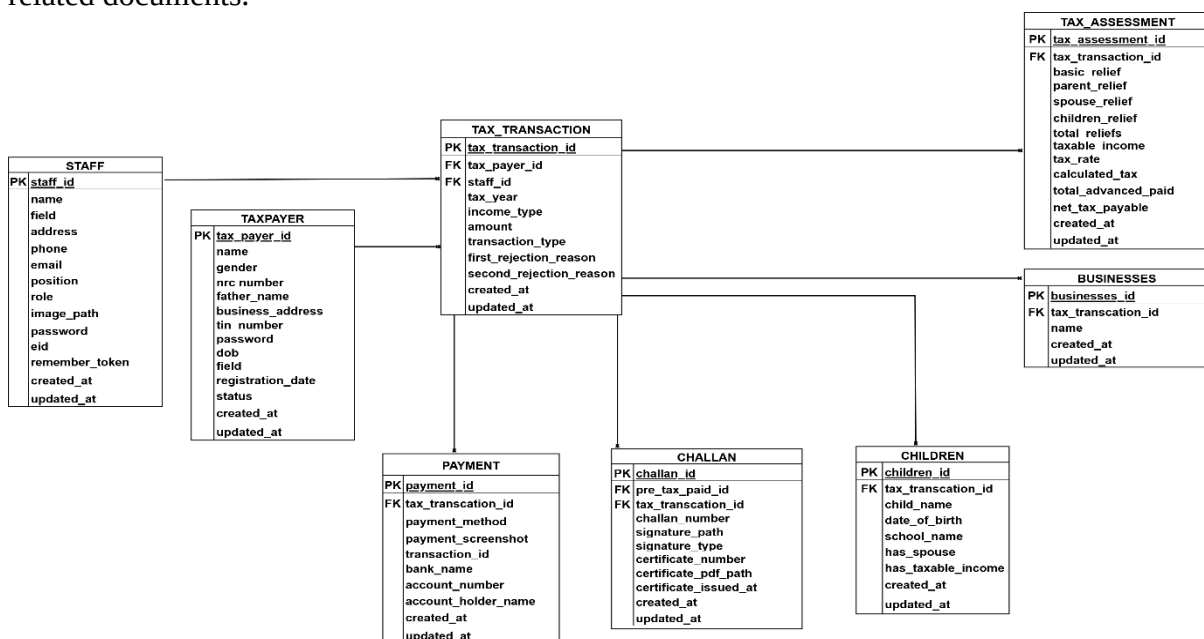


Figure 2. Database Architecture

Figure 2 presents the Entity Relationship Diagram (ERD) for the Income Tax Payment System. The diagram shows how the main database tables are organized and how they are connected to one another. It supports clear data modeling by defining primary keys, foreign keys, and table relationships to maintain data consistency and referential integrity. It also allows related data to be accessed and managed efficiently.

In the Income Tax Payment System, the ERD includes the core tables used for taxpayer registration, tax transaction management, tax assessment, payment processing, and payment certificate generation. The main tables include:

- **Staff** stores IRD staff information, including name, department, address, phone number, email, position, role, and login information.
- **Taxpayer** stores taxpayer registration and personal information, including name, gender, NRC number, father's name, business address, TIN number, email, password, date of birth, business field, registration date, and registration status.
- **Tax_Transaction** stores tax transaction information, including taxpayer, staff, tax year, income type, amount, transaction type, and rejection reasons.
- **Tax_Assessment** stores tax assessment information, including basic relief, parent relief, spouse relief, children relief, total reliefs, taxable income, tax rate, calculated tax, total advanced payment, and net tax payable.
- **Payment** stores taxpayer payment information, including payment method, payment screenshot, transaction ID, bank name, account number, and account holder name.
- **Challan** stores challan and payment certificate information, including challan number, signature path, signature type, certificate number, certificate PDF path, and certificate issue date.
- **Children** store information about the taxpayer's children, including child name, date of birth, school name, spouse status, and taxable-income status.
- **Businesses** store business information associated with tax transactions, including business name and the related tax transaction ID.

Each table is connected through primary keys and foreign keys to maintain referential integrity between related records. The taxpayer table is connected to the tax_transaction table, allowing one taxpayer to have multiple tax transactions. In addition, each tax transaction can be associated with related records in the tax_assessment, payment, challan, children, and businesses tables. The staff table is also connected to tax transactions to identify the staff member responsible for reviewing and processing them.

The ERD mainly represents one-to-many relationships to show how related records are organized within the database. For example, one taxpayer can have multiple tax transactions, while a tax transaction can have related assessment, payment, and challan records. Overall, Figure 2 provides the database foundation for the Income Tax Payment System, supporting the systematic management of taxpayer registration, tax transactions, tax assessment, online payments, and official payment certificates.

RESULTS

The Income Tax Payment System provides a centralized web-based platform for managing taxpayer registration, income tax transactions, tax assessment, online payment, payment verification, and payment certificate generation. The system also provides a tax calculator, dashboard, and report generation functions to support efficient tax management and

record-keeping. By integrating these functions into a single system, it reduces the need for repeated manual calculations and fragmented record-keeping.



Figure 3. User Interface of the Income Tax Payment System

In Figure 3, the User Interface provides an overview of the Income Tax Payment System and presents important tax-related information and services. It includes navigation options for accessing system functions and informational resources. The interface also provides tax-related guides, tutorials, and awareness information to help taxpayers understand the tax payment process and available services.

Figure 4. Tax Calculator Interface

In Figure 4, Tax Calculator Interface allows taxpayers to estimate their income tax based on income amount, income type, and applicable information such as spouse and child reliefs. The system automatically calculates the taxable income, applicable tax rate, and estimated tax amount, helping taxpayers understand their expected tax liability before making a payment.

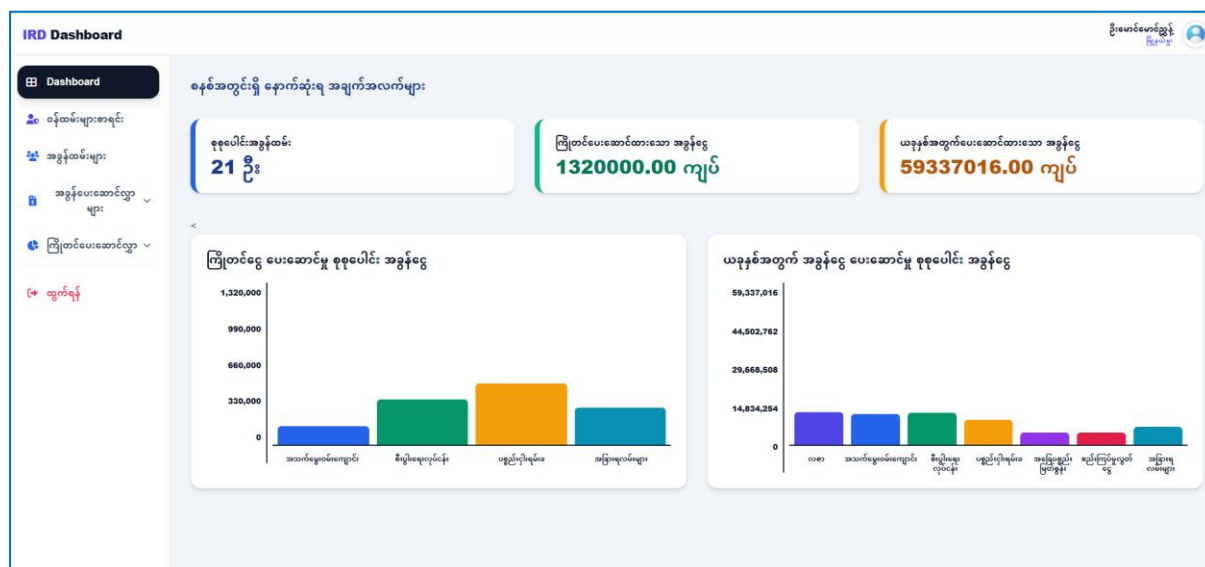


Figure 5. Staff Dashboard Interface

In Figure 5, the Staff Dashboard presents key information through summary cards and bar charts. The summary cards display the number of taxpayers, the total amount of current-year tax payments, and the total amount of pre-tax payments. The bar charts provide a comparison of tax payment amounts based on different income types, allowing staff to review and analyze tax transactions more efficiently.

CONCLUSION

The Income Tax Payment System provides an effective and reliable solution for modernizing income tax administration. The system simplifies taxpayer registration, income declaration, payment receipt generation, tax payment, and administrative management through a secure web-based platform. It improves efficiency, accuracy, transparency, and service quality while reducing manual work and processing delays. This project demonstrates the practical application of web technologies in government services and supports the digital transformation of the Internal Revenue Department.

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