Bus Fare Calculator System

In Partial fulfillment of the
Requirements for the subject
Computer Programming I
and Introduction to Computer.

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Introduction

Transport is an important aspect in the lifestyles of people especially in the urban regions where travelling through bus is considered one of the most adopted modes of transport. The precise and efficient manner of computing bus prices is increasingly becoming a need owing to the current population increase and the expansion of the transport system. Fixed or manually calculated fares offered by conductors have long been known to cause inaccuracy, delays and discrepancies.

A bus fare calculator system is a solution to these problems because it automates the calculations of fares depending on two main criteria, including destination and passenger category (adult, student, or senior citizen). Through thissystem, convenience, fairness and transparency are ensured in calculating fares. By integrating technology in the management of fees, the transportation firms will also beable to improve their services and offer their passengers a more accurate and reliablepayment process.

Problem Statement

There are several challenges experienced by passengers when computing fees in most public transportation networks. Among them are

1. Irrational calculation of fees due to human mistake or manual calculations. Lack of knowledge about the type of passengers that would translate to overcharging or inappropriate discounts.
2. Estimation of travel costs is hard especially when it is a long distance.
3. The lack of openness in the process of setting fares that might cause dissatisfaction among passengers.

Objectives of the Study

The primary aim of this project is to design and develop Bus Fare Calculator System, a system of calculating the fares automatically depending on the distanation andthe type of passenger. In particular, this research paper attempts to:

1. Make sure that an accurate system is developed to compute bus fares based on distanation as the main factor.
2. Add passenger categories (adult, student, senior citizen) and discount on fares.
3. Offer a convenient interface to the passengers and operators.
4. Improve effectiveness and transparency of computing and paying fares.

Scope and Limitation Scope

Scope

A bus ticketing program that allows bus passengers to purchase their bus tickets using a console. The options are: Student (20% Discount), Adult (Normal Fare), or Senior (30% Discount) among others. The program calculates the fare for the passenger type chosen then prompts the passenger to select their destination. It prompts them to select the number of tickets needed for payment. The machine calculates total fare, dispenses change, and prints a receipt with the ticket number and type, passenger type, destination and the amount of the total fare paid. The project performs a basic range of ticketing operations such as fare calculation, which is intended for small-scale or educational purposes. More advanced features like seat reservation, data persistence, refunding tickets, and online booking are not included.

Limitations

The system does not have online payment, ticket booking, and GPS distance tracking. It is also noted that the program does not preserve transactions, as all transaction data is lost when the program is terminated. Input validation and error

handling is limited, and commands are case-sensitive in some cases for users. Prices and discounts exist as hard code. Prices and discounts require a manual update when a change happens. There is no seat availability check and unlimited tickets can be sold. The payments do not support fractional amounts, authentication, refunds, or cancellations. Because the program is not suited for use in multiuser environments, it is intended for computers for single users. The code also has a lot of repeated fare calculations and handling of destinations that made it harder to maintain.

System Requirements

Hardware Requirements:

•Processor: Intel Core i3 or equivalent

•Memory (RAM): Minimum of 4 GB

•Storage: At least 200 MB of free disk space

•Display: Minimum 1024x768 resolution

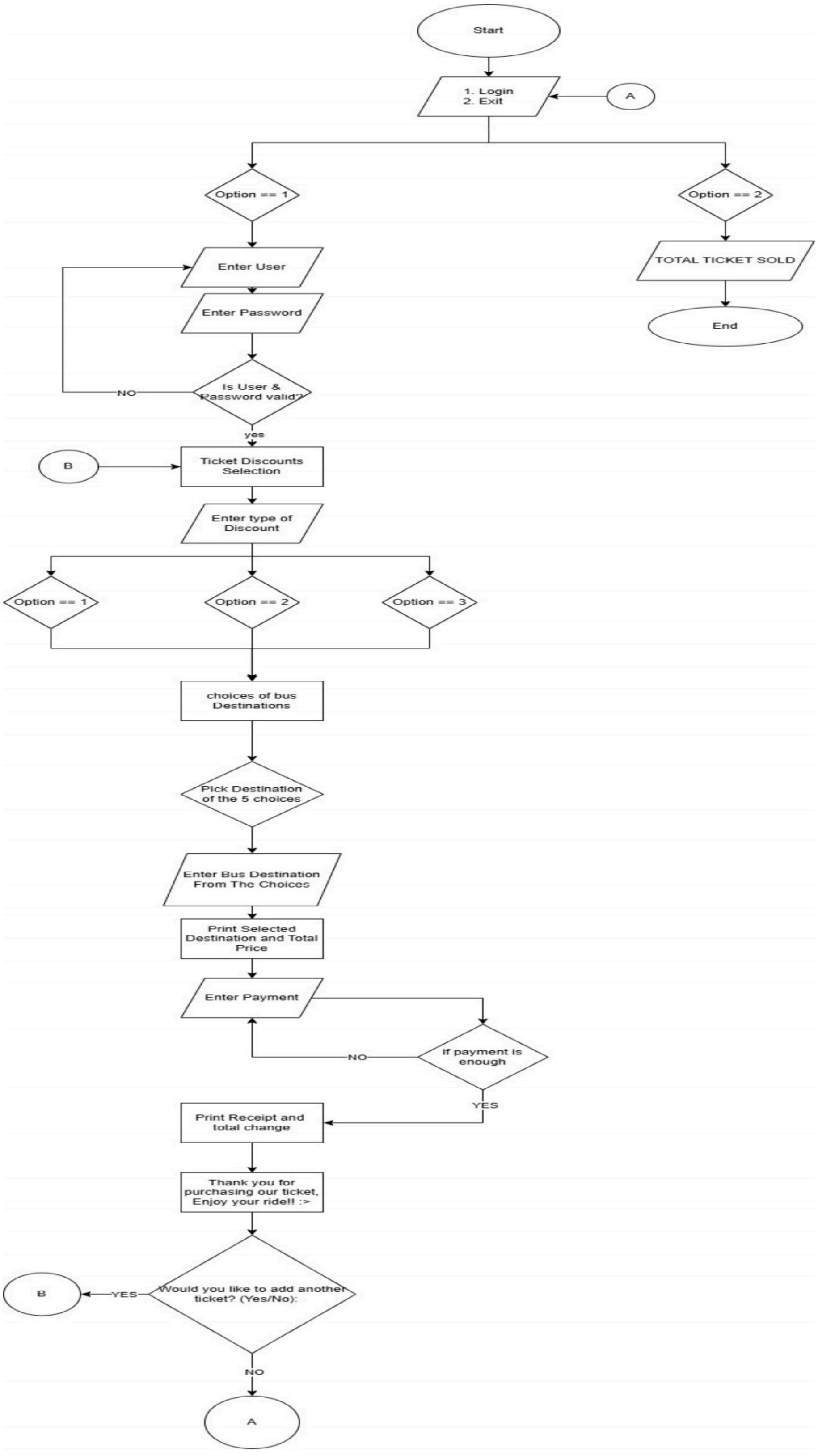
Software Requirements:

•Operating System:

•Windows 10 or higher / macOS / Linux

•Programming Language: Python 3.8 or higher

Text Editor or IDE: IDLE, Visual Studio Code, or PyCharm


Start
1. Login
2. Exit
A
Option == 1
Option == 2
Enter User
Enter Password
TOTAL TICKET SOLD
End
NO
Is User & Password valid?
yes
B
Ticket Discounts Selection
Enter type of Discount
Option == 1
Option == 2
Option == 3
choices of bus Destinations
Pick Destination of the 5 choices
Enter Bus Destination From The Choices
Print Selected Destination and Total Price
Enter Payment
NO
if payment is enough
YES
Print Receipt and total change
Thank you for purchasing our ticket, Enjoy your ride!! :>
B
YES
Would you like to add another ticket? (Yes/No):
NO
A