**SYS466 Assignment 1, graded out of 40, worth 5%.**

This assignment must be carried out in teams of 2 to 4 students. Your professor will give you instructions on team formation and will assign you a team number.

**Background:**

Tevbar Transportation Services is a small bus company that provides shuttle bus services for events such Tennis tournaments. Tevbar sets up routes and provides buses to carry customers from subway stops and major malls to the event venue, so that customers don’t have to drive their vehicles to places that have little or no parking.

Each route is made up of one or more stops and is serviced by one or more of Tevbar’s buses. Buses are either full sized, small buses or vans, depending on the expected volume of passengers. A passenger capacity is assigned to each bus to help route planners meet the requirements of each route.

Customers can purchase single ride tickets for a specific route, or they can purchase a discount pass which allows unlimited rides on specific routes for a specific time period (from one day to one month). Pass prices are determined by the cost of all routes selected for the pass times the number of days, minus 20%. So if two routes are selected and each costs $5, and the number of days is 5 then the price of the pass would be ($10x5) – 20% which gives $40. This could result in significant savings if the customer was traveling on the selected routes at least once a day.

**WORKING IN YOUR SYS466 TEAM and** using STARUML, create one uml file with the following:  
**In the USE CASE MODEL:**

* One system sequence diagram for each of the three scenarios. Please name the SSDs SSDScenario1, SSDScenario2, SSDScenario3 (each SSD is worth 5 marks)

**In the ANALYSIS MODEL (our Domain model)**

* One class diagram (worth 25 marks) which incorporates data from all of the scenarios. Please name it TevbarClasses.
  + Show classes, attributes, reference attributes, associations, multiplicity and association names
* **\*\*\*PLEASE PUT THE NAMES OF ALL TEAM MEMBERS PARTICIPATING IN THE ASSIGNMENT IN A NOTE IN THE CLASS DIAGRAM.**

**Name the uml file with your team number and assignment name e.g. Team1\_Assignment1.uml**

**Scenario 1: Create Bus Route**

**Precondition: Route Manager has logged into the system**

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| --- | --- |
| **Actor (Route Manager)** | **System** |
| Enters route number, route name, and requests to create a new route. | Displays a list of stops showing number, name and description for each |
| Selects two or more stops | Adds the stops to the route and displays the list of added stops. |
| Requests to add buses | Displays all available buses showing bus number and capacity for each. |
| Selects two or more buses | Adds the buses to the route and displays the list of buses added. |
| Enters fare and requests to save the route | Saves the new route and assigns it a status of “new”. |

**Scenario 2: Purchase a Single Ride Ticket**

**Precondition: Customer is at an active ticket machine**

|  |  |
| --- | --- |
| **Actor (Customer)** | **System** |
| Initiates ticket purchase | Displays number, name, and fare for all available shuttle bus routes |
| Selects route | Displays all stops for the route selected showing stop number, name and description |
| Requests to purchase | Asks for debit card (only debit cards allowed). |
| Taps debit card | Debit card is validated, a debit transaction is created and sent to the appropriate financial institution. A one ride ticket for the current date and the selected route is printed. *Note—no debit card data is stored in or recorded by this system.* |

**Scenario 3: Ride the bus with a Discount Pass**

**Precondition: Shuttle bus is equipped with scanner and display**

|  |  |
| --- | --- |
| **Actors** | **System** |
| Passenger gets on the bus at a stop and scans the discount pass. | Reads the bar code on the pass and retrieves and display the name of the discount pass owner on a screen that only the driver can see. Also displays a photo of the discount pass owner so the driver can do a visual check to make sure the pass is being used by its owner. |
| Bus driver indicates that the passenger is the owner of the pass. | The system then checks to see if the stop boarded is on one of the routes purchased by the pass (it is) and if the current date is within the start and end dates of the pass (it is).  Green light flashes for driver and passenger. |
| Passenger rides the bus |  |