American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

Public Transport Optimization

A Software Engineering Project Submitted
By

Semester: Summer_21_22		Section:	Group Number:	
SN	Student Name	Student ID	Contribution (CO3+CO4)	Individual Marks
01	SAZID – AL – ABEDIN	22-45999-1		
02	MD. SAIDUZZAMAN SOHAG	22-46006-1		
03	MD. SADMAN HOSSAIN	22-46061-1		
04	NOUROZE TARANNUM ANANNYA	22-46062-1		
05	SEEMANTA TORAFDAR	21-45968-3		

The project will be Evaluated for the following Course Outcomes

CO3: *Select* appropriate software engineering models, project management roles and their associated skills for the complex software engineering project and evaluate the sustainability of developed software, taking into consideration the societal and environmental aspects	Total Marks	
Appropriate Process Model Selection and Argumentation with Evidence	[5 Marks]	
Evidence of Argumentation regarding process model selection	[5Marks]	
Analysis the impact of societal, health, safety, legal and cultural issues	[5Marks]	
Submission, Defense, Completeness, Spelling, grammar and Organization of the Project report	[5Marks]	
CO4: *Develop* project management plan to manage software engineering projects following the principles of engineering management and economic decision process	Total Marks	
Develop the project plan, its components of the proposed software products	[5Marks]	
Identify all the activities/tasks related to project management and categorize them within the WBS structure. Perform detailed effort estimation correspond with the WBS and schedule the activities with resources	[5Marks]	
Identify all the potential risks in your project and prioritize them to overcome these risk factors.	[5Marks]	

Description of Student's Contribution in the Project work

Student Name: SAZID – AL – ABEDIN
Student ID: 22-45999-1
Contribution in Percentage (%):
<u>Contribution in the Project:</u>
- Contribution Description 1
- Contribution Description 2

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Signature of the Student

Student Name: MD. SAIDUZZAMAN SOHAG
Student ID: 22-46006-1
Contribution in Percentage (%):
<u>Contribution in the Project:</u>
- Contribution Description 1
- Contribution Description 2

_____
Signature of the Student

Student Name: MD. SADMAN HOSSAIN
Student ID: 22-46061-1
Contribution in Percentage (%):
<u>Contribution in the Project:</u>
- Contribution Description 1
- Contribution Description 2

_____
Signature of the Student

Student Name: NOUROZE TARANNUM ANANNYA
Student ID: 22-46062-1
Contribution in Percentage (%):
<u>Contribution in the Project:</u>
- Contribution Description 1
- Contribution Description 2

Signature of the Student

Student Name: SEEMANTA TORAFDAR
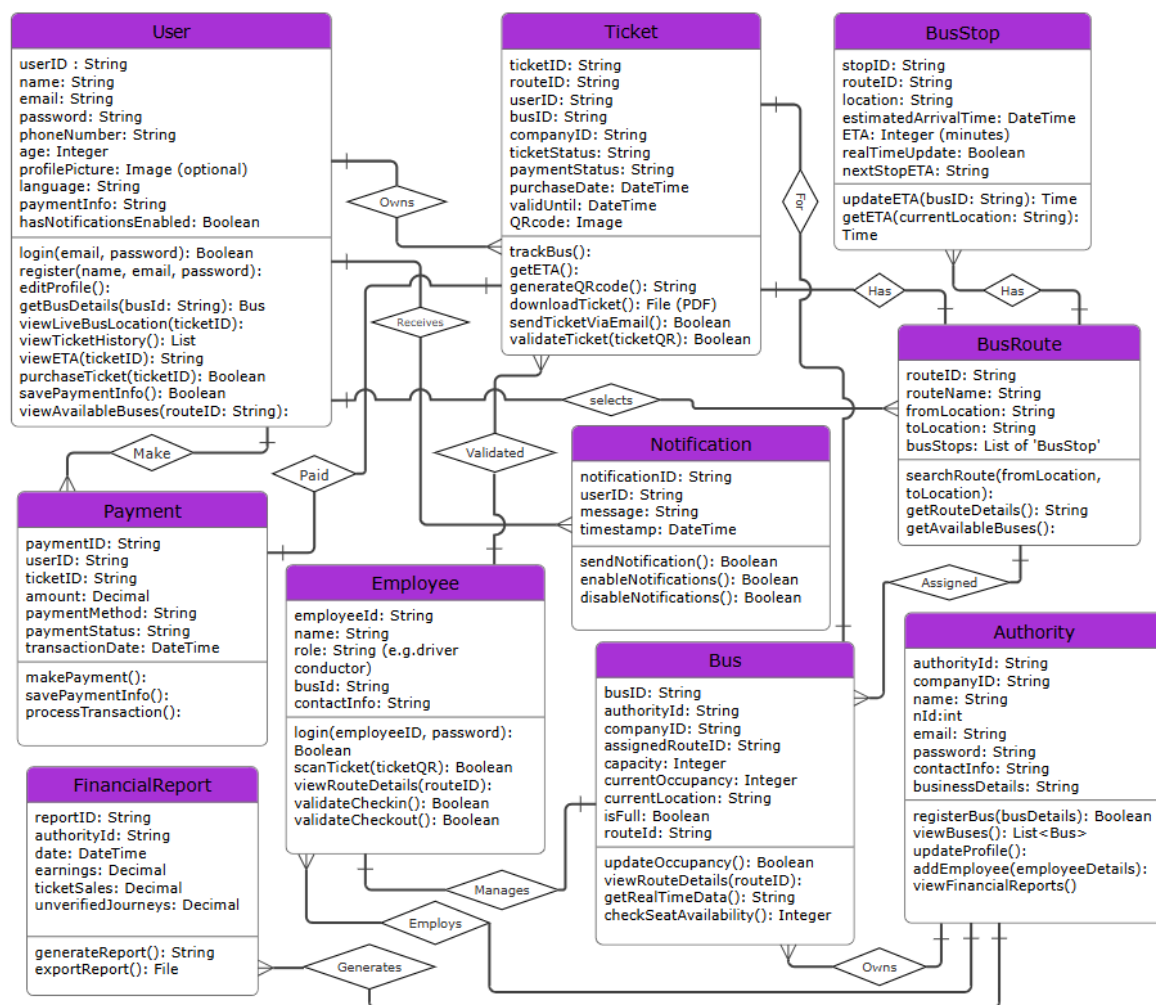Student ID: 21-45968-3
Contribution in Percentage (%):
<u>Contribution in the Project:</u>
- Contribution Description 1
- Contribution Description 2

Signature of the Student

Class Diagram:

User
userID : String
name: String
email: String
password: String
phoneNumber: String
age: Integer
profilePicture: Image (optional)
language: String
paymentInfo: String
hasNotificationsEnabled: Boolean

login(email, password): Boolean
register(name, email, password):
editProfile():
getBusDetails(busId: String): Bus
viewLiveBusLocation(ticketID):
viewTicketHistory(): List
viewETA(ticketID): String
purchaseTicket(ticketID): Boolean
savePaymentInfo(): Boolean
viewAvailableBuses(routeID: String):

Ticket
ticketID: String
routeID: String
userID: String
busID: String
companyID: String
ticketStatus: String
paymentStatus: String
purchaseDate: DateTime
validUntil: DateTime
QRcode: Image

trackBus():
getETA():
generateQRcode(): String
downloadTicket(): File (PDF)
sendTicketViaEmail(): Boolean
validateTicket(ticketQR): Boolean

BusStop
stopID: String
routeID: String
location: String
estimatedArrivalTime: DateTime
ETA: Integer (minutes)
realTimeUpdate: Boolean
nextStopETA: String

updateETA(busID: String): Time
getETA(currentLocation: String):
Time

BusRoute
routeID: String
routeName: String
fromLocation: String
toLocation: String
busStops: List of 'BusStop'

searchRoute(fromLocation,
toLocation):
getRouteDetails(): String
getAvailableBuses():

Notification
notificationID: String
userID: String
message: String
timestamp: DateTime

sendNotification(): Boolean
enableNotifications(): Boolean
disableNotifications(): Boolean

Payment
paymentID: String
userID: String
ticketID: String
amount: Decimal
paymentMethod: String
paymentStatus: String
transactionDate: DateTime

makePayment():
savePaymentInfo():
processTransaction():

Employee
employeeId: String
name: String
role: String (e.g.driver
conductor)
busId: String
contactInfo: String

login(employeeID, password):
Boolean
scanTicket(ticketQR): Boolean
viewRouteDetails(routeID):
validateCheckin(): Boolean
validateCheckout(): Boolean

Bus
busID: String
authorityId: String
companyID: String
assignedRouteID: String
capacity: Integer
currentOccupancy: Integer
currentLocation: String
isFull: Boolean
routeId: String

updateOccupancy(): Boolean
viewRouteDetails(routeID):
getRealTimeData(): String
checkSeatAvailability(): Integer

Authority
authorityId: String
companyID: String
name: String
nId:int
email: String
password: String
contactInfo: String
businessDetails: String

registerBus(busDetails): Boolean
viewBuses(): List<Bus>
updateProfile():
addEmployee(employeeDetails):
viewFinancialReports()

FinancialReport
reportID: String
authorityId: String
date: DateTime
earnings: Decimal
ticketSales: Decimal
unverifiedJourneys: Decimal

generateReport(): String
exportReport(): File

Relationships: Owns, Receives, For, Has, Has, selects, Make, Paid, Validated, Manages, Employs, Generates, Assigned, Owns

Use Case Diagram: