Good (Truck) Driver Incentive Program

Fall 2022

Backstory

Your company has been hired by an entrepreneur to build a software system for the trucking industry. Specifically, your team has the contract to build a web application that can be used to incentivize the improvement of the on-road performance of truck drivers. Your client wants to use the web app to sell the incentive service to companies that work with truck drivers (referred to as sponsors below). To encourage better driving, the sponsors (companies) are going to award points to drivers for behaviors they want to encourage and possibly take away points for bad behaviors. The program is much like many reward programs where you earn points for doing things the rewarder wants you to do. In this application, the sponsors will maintain a catalog of products (think Amazon, but much smaller) where the drivers can redeem their points. Since your entrepreneurial client has no revenue flow, your company is working this project "on spec" for 1% of the total sales generated by the system once it moves from development to production. [Which means you really want to know who bought what for how much!] All of the products are sold & delivered via a third party. Your company will also be the maintainers and administrators of the system once it goes into production.

User Specific Requirements
Drivers:

- earn points for good driving behavior
- are affiliated with one sponsor company
- use their points to purchase products from their sponsor's product catalog
- points are added on a recurring basis for good performance
- can use their points at any time for items in the sponsor's catalog

Drivers Users:

- can log in
- review/update their user profile and password
- browse products in their sponsor company's catalog
- "purchase" these products using their points
- review their point status
- review the status of their purchases
- cancel/update purchases

Sponsors:

- companies sponsor drivers and have control over which drivers to accept via a driver application process
- sponsor companies maintain a catalog of incentive products (G or PG only)
- the products in the catalog must be selected by a means that allows for automated updating of the price and availability information of each item
- product information must come from a publicly accessible API

- sponsors set the dollar value of the driver points, the default value is $0.01 for each point

Sponsor Users:

- can log in
- review/update their user profile and password
- review/update relevant sponsor information
- review the status of their participating drivers
- approve or reject driver applications
- add/review/update driver information
- add/deduct points from a driver
    o there must be a reason for each point change
- review/update the product catalog
- purchase items on behalf of a driver (using the drivers points)
- create new sponsor users, there can be multiple logins per sponsor
    o sponsor users are self-managed and **do not** go through a registration/application process
- generate the sponsor reports identified below

Sponsor Product Catalog:

- catalogs are unique to the sponsor
- uses an public, online API (eg, eBay, Overstock & etsy have them) to produce the sponsor specific catalog of incentive products. Product information can include:
    o name
    o availability
    o price (in points)
    o description
    o images
    o other relevant information
- uses the API to obtain the current product price and availability of a product when it is added to the driver's purchase set (aka shopping cart)
- the product catalogs are updated in real-time via the web API

Admin Users:

- can log in
- review/update their user profile and password
- review/update
    o any sponsor user
    o any driver user
    o any admin user
- add new admins, drivers and sponsor users
- generate the admin reports identified below

Audit Logging:

- The system needs to maintain information on the significant state changes:
    - driver applications: date, sponsor, driver, status (accept/reject), reason
    - point changes: date, sponsor, driver, # of points, reason
    - password changes: date, user, type of change
    - login attempts: date, username, success/failure

Application security:

The application must be secure. At a minimum, your application must:

- Provide and enforce a password complexity system
- Encrypt the user's password at rest
- Encrypt any additional private information that you add to the system
- Protect against SQL injection attacks
- Provide a secure password reset system for the driver, sponsor, and admin users

This is the minimum set of security requirements. You do not need to use purchase a domain or ssl cert. Accessing the web app via http is acceptable.

Reports:

The system must include the following reports:

- Sponsor Report:
    - Driver Point Tracking
        - Select by All Drivers or individual driver
        - Select by Date Range
        - Display driver name, total points, point changes, date of point change, name of sponsor making the point change, reason for point change
    - Audit Log report (restricted to the sponsor's drivers only)
        - Select by Date Range
        - Select by audit log category (show above)
- Admin Reports:
    - Sales by Sponsor
        - Select by All sponsors or individual sponsor
        - Select by Date Range
        - Detailed or Summary views
    - Sales by driver
        - Select by All sponsors or individual sponsor
            - For an individual sponsor
            - Select by All Drivers or individual driver
        - Select by Date Range
        - Detailed or Summary views

- o Invoice, one per sponsor
    - Select by All sponsors or individual sponsor
    - Select by Date Range
    - Summarizes purchases by driver over date range
        - fee generated by driver
    - Total fee due for sponsor
- o Audit Log reports
    - Select by Date Range
    - Select by All sponsors or individual sponsor
    - Select by audit log category (show above)
- All reports must be **visually** appealing
  (ie a CSV file is NOT a visually appealing format)
- All reports should be downloadable in a CSV file format

General System Requirements

- The incentive program app must be a responsive and conform to the size of the user's display.
- The system must be deployed to a publicly available server using an AWS server.
- The system must use an AWS hosted database.
- The user interface **cannot** require the use of computer-generated id's to operate.

Development Process:

The project will be managed using Agile Project Management via Azure Dev Ops and Git. User stories will be generated by the team to document the requirements for the implementation. These stories will be grouped into features/epics. The features/epics will be managed using branches in the Git repository. The team will project a release roadmap showing the planning implementation of the features/epics. Your team must define and institute a deployment process that every member of the team can use.

Professional Skills Showcase:

The team must select an area to go deeper, outside the requirements specified above. Some possible areas include:

- Advanced database features: use triggers, stored procedures, database jobs, user level access permissions
- Testing: automated testing
  (6 person teams are REQUIRED to develop an automated testing process)
- Web Accessibility: Use Web Content Accessibility Guidelines (WCAG) 2.0
- Mobile app: <u>native</u> iOS or Android app
- AWS: incorporate other AWS services, other than EC2 & RDS

Your team's professional skills showcase must be identified in your team summary.

Your team will need to provide a summary and artifacts to illustrate the team's professional skill(s) as part of the final project demo.