

Bonus Assignment #1

Due Date: 10/27/20 by 11:59pm

Deliverable:

- Use the object-oriented design principles and utilize the MVC architecture discussed in the class to produce an object-oriented web-based enterprise application that is reusable, flexible, and extensible.
- Use **Servlets** to implement the functionalities listed below.
- Record 10 minutes demo of your assignment's run using screencast. The tool can be downloaded from this URL <http://screencast-o-matic.com/home>
- Capture most important 10 screen-shots of your output and save them in a file called output.pdf
- All source code and byte code shall be submitted.
- Readme text file that illustrates how to compile/install/run your application
- Post your homework as a single zipped file on Blackboard with the name "Bonus_HW1_YourLastName,FirstName"

Important Notes:

- NO IDE to be used in any shape/form in the implementation of this assignment
- Do NOT communicate or share your assignment with others
- For this Assignment you must enter at least 10 store locations, 10 customers, 50 reviews, and 50 transactions

High-Level Requirements:

Extend Assignment #2 to add the Data Analytics features.

The bonus assignment can be considered for grading ONLY if the functionalities listed in Assignment #2 are completely implemented.

No hard-coded queries will be accepted. You are allowed only to extend the required functionalities listed above to implement the bonus features listed below.

Please DO NOT HARD-CODE the queries/selections in your implementation; you will get ZERO credit if you HARD-CODE the queries. You must provide the user with options to select values.

For the Data Visualization/Trending feature in requirement #12 listed below, consider Google charts documentation at the following URL:

<https://developers.google.com/chart/interactive/docs/gallery/barchart>

For the HeatMap feature, use Google HeatMap documentation at the following URL:

<https://developers.google.com/maps/documentation/javascript/heatmap>
player

Use the following URL to get the latitude and longitude for any address:

<https://www.latlong.net/convert-address-to-lat-long.html>

Detailed Requirements:

- Add the **HeatMap** link that is accessible only to the Store Manager
- The **HeatMap** link will allow the store manager to select and view:
 1. Total number of reviews for every store location
 2. Total number of transactions for every store location
 3. Total number of liked (rating ≥ 3) products for every store location
 4. Total number of disliked (rating < 3) products for every store location
 5. Total number of store pick-ups for every store location
- Add the **Data Analytics** link that is accessible only to the Store Manager
- The **Data Analytics** link will allow the store manager to perform different analytical queries.
- The following are **only some examples (a sample of queries)** that your implementation must be able to answer (Please do NOT hard-code those queries in your source):
 1. Print a list of reviews where rating greater than 3
 2. Get a list of products that got review rating 5 and price more than \$100
 3. Find highest price product reviewed/sold in every zip-code
 4. Get the total number of products reviewed and got Rating 5 in Every zip-code
 5. Get the total number of store pick-ups in every zip-code
 6. Get the top 2 list of zip-codes where highest number of products got review rating 5
 7. Get a list of reviews where reviewer age greater than 50 and the list is sorted by age in every zip-code
 8. Search reviews text for keywords (pattern-matching) and print the list of reviews that have the matched keywords. For example, print the list of reviews that have "XBOX overheat" keywords in the review text