

# Harford County

## Tour Recommendation

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## **Abstract**

Visit Harford — Harford County, Maryland’s destination marketing organization — would like to improve its Visitor Tour Planning Application to enhance the touring experience for people visiting the county.

The current application shows each point of interest individually and lacks an integrated way to show visitor’s a tour of all the points of interest (museums, breweries, and monuments). As a result, visitors have to find and map every point of interest one by one.

To improve this experience, this project aims to attract tourists to the county and make them aware of the various activities happening in the county. The county envisions a web and mobile-based user application that will provide visitors with tour recommendations based on sites’ locations and business hours, and the visitor’s time preference.

This tool will benefit visitors by providing intelligent tour recommendations for visiting points of interest based on location, time preferences, and selected categories (landmark, art, sports, lodging, etc.). The visitors will have the freedom to seamlessly plan personalized tours based on the categories they select and without switching back and forth between details of each point of interest.

To achieve this, data from GIS class—points of interest (POI), address, category (landmark, art, sports, lodging, etc.), contact, business hours, descriptions, and geocoding details (mainly longitude and latitude information)—of the various attractions will be made available to the app development team, which will then use it to map tours using either Google Maps or other openly available mapping application programming interfaces (APIs).

## **Scope**

This project consists of building an online tour recommendation system that will help Harford County attract more tourists. The system will provide an interactive way to explore the county and recommend tours based on users’ interests (museums, breweries, shops, etc.) and time preferences. This system will be an additional feature to the current system in use, that is, the website and the mobile app.

The table below lists the important milestones and tasks to be completed throughout the project.

## Creating the Visit Harford Points of Interest App

milestone	tasks	description
Early user interface planning	Decide screen	Determine the number of "screens," or states the application can be in
	Design	Create rudimentary sketch of what the app might look like
	Plan the user interface	Determine how the user interface (UI) will operate and choose a technology that can accommodate UI functions.
Develop front-end	Set up technical environment for building the product	Set up the technical environment for building the application on the local machine
	Create content pages	Develop front-end pages in the chosen style and design <ul style="list-style-type: none"> <li>• Welcome page</li> <li>• Input page</li> <li>• About</li> <li>• Help</li> <li>• Result page</li> <li>• Visualization page</li> </ul>
	Add functionality	Add functionality and link to static content pages <ul style="list-style-type: none"> <li>• Dropdown for selecting category</li> <li>• Detect user location, or add location manually</li> <li>• Input available travel time</li> <li>• Display visualizations of the tour attractions</li> <li>• Download tours as a pdf file</li> </ul>
	Perform unit testing	Test to ensure all functionality on front end works as expected
	Fix bugs	Fix bugs during testing
Develop back-end	Data modeling: plan database architecture	Decide how to organize existing data. Decide table structure and establish relationships
	Set up environment	Set up technical environment to develop database

	Develop database and upload data	Implement the database and store existing data in it
	Scrape reviews and preprocess the data	Scrape attraction review data from the web and preprocess for analysis
	Perform sentiment analysis and update database	Process review data and apply sentiment analysis. Store the score in database
	Perform unit testing	Test whether data is easily accessible, and that the database server doesn't crash
	Fix bugs	Fix bugs identified in the testing phase
Integrate	Research methods for ranking attractions	Research methods for deciding which attractions to recommend in a tour
	Implement the algorithm found	Implement the logic that will pick up relevant attractions to be recommended to visitors based on their input
	Data flow: Integrate front-end and back-end	Establish a connection to ensure smooth data flow. Data input from the front-end is processed according to the logic, and the results are pulled from the database for display
Test the system	Perform system testing	Check that functionality is running smoothly and the system is not crashing during testing
	Client user acceptance testing	Ask the client to review and test the system
	Fix bugs	Fix bugs encountered during testing
Deploy the system	Set up production server	Move the system from local to deployment environment
	Deploy the web app onto the production server	Run the code on the deployment server
User documentation	Prepare training video	The training video is a short step-by-step guideline on how to navigate the system

	Prepare admin user manual	This module will contain details for accessing and updating database information
	Get client approval	The document will be reviewed and approved by the client

## Schedule

The project schedule is a detailed plan of milestones and tasks with intended start and end dates. The following table lists the important tasks and their planned start and end dates.

S No.	Ref No.	Task Name	Start Date	End Date
1	1.1	Decide Screens	1/28/19	1/29/19
2	1.2	Design	1/30/19	1/30/19
3	1.3	Plan the user interface	1/31/19	2/1/19
4	2.1	Set up technical environment	2/4/19	2/5/19
5	2.2	Create pages	2/6/19	2/12/19
6	2.3	Add functionality	2/13/19	2/18/19
7	2.4	Unit testing	2/19/19	2/19/19
8	2.5	Bug fixes	2/20/19	2/21/19
9	3.1	Plan database architecture	2/25/19	3/6/19
10	3.2	Set up environment	3/7/19	3/11/19
11	3.3	Develop database and upload data	3/12/19	3/21/19
12	3.4	Scraping reviews and preprocess	3/1/19	3/8/19
13	3.5	Perform sentiment analysis and update database	3/22/19	4/4/19
14	3.6	Unit testing	4/5/19	4/9/19
15	3.7	Bug fixes	4/10/19	4/11/19
16	4.3	Integrate front end and back end	4/12/19	5/3/19
17	4.1	Research methods for ranking attractions	3/6/19	3/27/19
18	4.2	Implement the algorithm found	3/28/19	4/11/19
19	5.1	Perform system testing	5/6/19	5/6/19
20	5.2	Client user acceptance testing	5/7/19	5/9/19
21	5.3	Bug fixes	5/10/19	5/20/19
22	6.1	Set up production server	5/21/19	5/22/19
23	6.2	Deploy on web app on production server	5/23/19	5/24/19
24	7.1	Prepare training video	5/21/19	5/21/19
25	7.2	Prepare admin user manual	4/30/19	4/30/19
26	7.3	Get client approval	5/6/19	5/10/19



## Communication Plan

The communication plan is a detailed description of the people being interviewed and the people involved in the project. The following table lists the people involved.

Name	Email	Phone
<b>Client Contact</b>		
Greg Pizzuto	greg@visitharford.com	443-752-6926
<b>UMD Contact</b>		
Shriya Gupta	shriya@umd.edu	202-695-6106
Ramleen Lamba	ramleen7@terpmail.umd.edu	908-963-2518
Kathy E Weaver	keweaver@umd.edu	301-405-0335

## Deliverables

The final deliverable at the end of the project will be:

- Tour recommendation web application
- User documentation for the admin on how to update the database
- Review and suggestion of existing app (If time permits).