School of Computing

Year 4 Project Proposal Form

SECTION A

Project Title: BookWorm

Student Name: Simon Lowry

Student ID: 14722285

Stream: CASE

Project Supervisor Name: Darragh O'Brien

[Note: It is the student's responsibility to ensure that the Supervisor accepts your project and this is only recognised once the Supervisor assigns herself/himself via the project dashboard. Project proposals without an assigned Supervisor will not be accepted for presentation to the Approval Panel.]

SECTION B - Project Description

General area covered by the project
.Net Web Application, Machine Learning.

Outline of the proposed project

The project will be a .Net web application where you can review books, have a customizable and unique profile and gain knowledge of other books that you might be interested in using a recommender system. It be structured with 5 layers, the first three of which will be made up of the MVC pattern (model, view, controller), followed by the service layer and finally the repository layer.The service and repository layers will carry out all database interactions. This 5 layered approach will enable the system to be highly maintainable and suited to a variety of testing methods. I intend on using tools such as FakeItEasy and NUnit to enhance the testing process.

Background - where the ideas came from
I'm a passionate bookworm, I love learning and gaining as much knowledge as I can from the books I read. I originally started making an application which would allow me to visualize my kindle highlights and notes online, the idea progressed from there and morphed into this project. I feel like I can add a visually appealing and useful system to the book reviewing web applications realm.

Achievements - what functions it provides, who the users will be
A means of reviewing books you've read and gaining insight into what others have read and thought about particular books.

Some of the core functionality will be as follows:

- ***A Recommender system:***
The system will make use of collaborative filtering which is based on the idea that people who share an interest in certain things will probably have similar tastes in other things as well. One of the candidate software tools that I'm considering using to aid in this process is Lenskit. Lenskit is an open source tool for recommender systems. [1] It's also used extensively in an online introductory course on recommender systems on the website coursera.org.[2]

If I move forward with Lenskit as my tool of choice, I intend on making use of the lectures available on this site and any other resources I can find. In order to implement and test the functionality of the recommender system, I've downloaded a data set from the website Kaggle. This dataset has thousands of user reviews on individual books which have been scraped from the website goodreads.com.[3] This rich data set of user reviews is ideal for the implementation and validation of the intended recommender system.

-***the ability to view what your friends are reading and what they have read***

-a dedicated profile full of information about the books you've read and would like to read as well as your favourite authors and quote preferences

-***the ability to upload, view, create and delete your kindle highlights and notes***

- When the user is logged into the web application and (their kindle is connected to the device their using to log in) they will be able to upload the single text file which stores all Kindle highlights and notes. This file will then be parsed and the user will be able to see all of their highlights and notes online.

Users of the system:

Anyone and everyone passionate about their books.

Justification - why/when/where/how it will be useful

I want to make a system which is highly visual and visceral, which adheres to web usability standards and practices. I want the user to have an experience that has them coming back for more. To create this experience, the user will have a customizable profile where they can express all of their book related preferences. They will be able to see and view what their friends have read and connect with all kinds of book lovers.

As someone who loves reading, I can understand the frustration of the situations where you have nothing to read. The laborious process of scrolling through book covers and websites in order to find your next book can be time consuming. Having a tailored recommender system which can make suggestions would take the sting away from this situation providing the user with an abundance of options that are specifically suited to the preferences of the reader. BookWorm will provide the user with this recommender system.

Kindle users will know all about the frustrations that come with the highlights and notes functionality you make while reading on a Kindle. Currently, users are unable to visualize the notes and highlights they make without going directly to the location in the book. This can be frustrating if you want to view certain quotes or you've made notes for any reason. BookWorm will contain functionality whereby you can upload all your notes and highlights which will then be readily available and presented in a user friendly way. This will benefit anyone who uses kindle.

Programming language(s) - List the proposed language(s) to be used

C#, Javascript (JQuery, Bootstrap), HTML, CSS, MVC.Razor,

Programming tools / Tech stack – e.g. compiler, database, web server, etc

- Windows Visual Studio
- SQL Server Management Studio
- It will be hosted on a free web server such as www.myasp.net or https://somee.com.
- Lenskit

Learning Challenges - List the main new things (technologies, languages, tools, etc) that you will have to learn

Machine Learning – recommender systems, Entity Framework, MVC Pattern, Repository pattern, Autofac, Lenskit

Hardware / software platform - State the hardware and software platform for development

Windows platform.

Special hardware / software requirements - Describe any special requirements.

N/A

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References:

[1] http://lenskit.org/
[2] https://www.coursera.org/learn/recommender-systems-introduction
[3] https://www.kaggle.com/zygmunt/goodbooks-10k/