Project Proposal

Project Name: Tresearch
Application Type: Web Application

Trial By Fire
Jessie Lazo
Matthew Chen (Team Lead)
Pammy Poor
Viet Nguyen

Instructor: Vatanak Vong

Submission Date
9/23/2021

California State University, Long Beach
College of Engineering
CECS491 Section 6 11950, Fall 2021

Project Description

Tresearch is an interactive mind mapping tool for documenting users' learning journey. Users can create their own knowledge tree(s) to document what they are currently learning and have learned throughout their life. Knowledge trees are made up of nodes that consist of a title, description/summary, and optional tag. Branches that come off of nodes point to nodes that utilize or require knowledge from the previous node. Users can view any other user's public knowledge trees to see what they are learning or have learned and how. If a user finds another user's tree or a portion of their tree to be particularly useful or helpful, they can rate a particular node or section of the tree and they can also copy that section over to their own tree. Users can add additional information to their public profiles such as what they are currently learning, and where they are working/what they currently do or have done. Users can utilize a search function in order to find people whose trees contain a certain topic or keyword/phrase, and can also utilize a filter to narrow searches by users who are learning said topic, are using said topic (i.e. in their work or otherwise), by rating, and by tags.

Target Customers

American English speaking residents of the United States above the age of 13 who want to document their learning in a visual manner and see what kinds of things other people have learned and how.

Scope

The project will be a multiple page web application. We will support the latest version of Chrome at the date that we start development (we will maintain our Chrome versions at this version or downgrade the presenters version to it when necessary). Our initial target audience will be American English speaking residents of the United States above the age of 13 to comply with Children's Online Privacy Protection Act (COPPA). The IP range will be restricted to the United States to maintain our target customers. The web application will utilize cookies in order to enhance the user experience and for any other functionalities that may be enhanced through their use that we choose to apply the cookies towards. Cookies will adhere to the strongest regional regulations within the United States.

Features To Be Implemented

1. Tree creation system consists of starting with a root node, creating new nodes, and connecting branches.
    a. All nodes will consist of a title and description/summary
    b. Root nodes will typically be titled with either the overarching topic, person the tree belongs to, project
    c. Trees can have multiple subtrees
    d. Branches stem off "prerequisite nodes" to other nodes

    e. Trees will be infinite in length (Elaborated below)
    f. There will be a soft limit to the number of nodes a user can create in a certain time frame. When the user hits this limit, they will be presented with a reCaptcha in order to prevent spam from malicious users. This soft limit can be hit multiple times.
    g. There will be a hard limit to the number of nodes a user can create in a certain time frame in order to provide further prevention of malicious intent (this hard limit will be hidden from the user until they hit it, users who hit the hard limit will be notified and their accounts may come under review to check for malicious activity)
    h. Nodes can be designated as “semi-root” nodes which indicates the node to be the root of a subtree
    i. Can only copy nodes that are directly connected to the selected node (i.e. ancestors and descendents)
    j. Ability to copy all or sections of a tree to be added to a user's personal tree, adding to a desired node.
    k. Only public nodes can be copied
    l. Can copy the nodes and make them a separate tree itself.
    m. Copying falls under the soft and hard limits, if the number of nodes being copied at one time exceeds the soft limit, the user will receive a reCaptcha
    n. If the number of nodes being copied would exceed the hard limit, prevent the copy and notify the user how many nodes they can create/copy
    o. Deleting a node will subtract from the users current usage within that time frame (the current usage cannot go negative i.e. user can always only create up to the hard limit)
    p. Nodes/trees/subtrees can be tagged with additional information to help in the search process (beginner, intermediate, advanced, reading, research)
2. Search function for finding trees that contain keywords/phrases
    a. Feature where users can search for anything (not limited to our word bank, word bank is only for suggestions)
    b. The result of a search is a list of users who have a public node whose title matches or contains the search (exact matches will appear at the top of the list)
    c. If not narrowed with filter, results will be random from the pool of relevant matches (for purposes of exposure to more users)
    d. Users may also search from suggested keywords/phrases to search from
    e. Suggested keywords/phrases to search will come from initial word bank, which will be adjusted as more users have identical searches and new searches are made
    f. Initial word bank will be created from existing learning topics as found by our team on the internet
    g. Word bank is updated every week based on all users search (a list of banned words will be used to check for inappropriateness, the banned word list will be imported)
3. Filter

    a. Narrow down searches by users who are using or learning the topic searched, by helpfulness rating system, and by tag(s).
4. Private/Public System
    a. Ability to make all or part of a tree private/public.
    b. Private nodes do not appear to other users (i.e. invisible to other users)
    c. Private nodes cannot be copied
    d. If a node is made private and it has descendants, all of the node's descendants are made private too.
    e. If a node is private and it has at least one private ancestor, that node cannot be made public
    f. If a new node is made that would branch off a node that has been made private, that node is also made private (i.e. keeping in line with descendants of private nodes are always private)
    g. If a node(s) would be copied and made a descendant of a private node, that node(s) will also be made private
5. Helpfulness/Quality Rating System
    a. Users can rate by node, tree, or subtree (select multiple nodes at a time and add or remove their rating simultaneously)
    b. Helpfulness rating is scalar (i.e. 1-5, with 5 being the highest)
    c. If a node that has been already rated is within a tree or subtree that has been selected to be rated, then that node's rating will change according to the rating given to the whole (if the user does not want this to occur then they can deselect the particular node(s))

Competitors in The Market

Competitor	What makes us similar	How our product is different or better
LinkedIn	Listing user skills and connecting with people with similar interests	Our product would be more documentation and exposure oriented, rather than focused on networking for the sake of being in a particular industry. Users would be encouraged to document what they have learned/are learning in their life both for themselves as a way to look back on what they have accomplished in their life, as well as to provide others a glimpse as to their particular skill sets and how they achieved them. Our product would also provide a

		place for users who are interested in learning a topic to be able to quickly and easily find other users who have experience in said topic in order to provide them with an initial starting point/road map for learning the topic.
Khan Academy	A medium for users to learn new things and get help in learning them.	Our product would not provide lessons geared towards specific topics. Rather it would be focused on documenting users learning and providing users with a place to see how other people have learned certain topics/skills to provide them with a starting point for learning.
SkillShare	A medium for users to learn new things and get help in learning them.	Our product would not provide lessons geared towards specific topics. Rather it would be focused on documenting users learning and providing users with a place to see how other people have learned certain topics/skills to provide them with a starting point for learning.

Value Provided To The Market

The value that our product provides is a place for people to document their learning and skills in a visual way and provide them with a starting place to learn new topics. It will also serve as a semi-motivational product in that users can see what things are “hot” or new to learn, which may facilitate learning.

What Will Keep Users Coming Back?

Users who are focused on documentation, either for personal records, to help others, and/or for the purposes of showing off their skills set to others will want to frequently come back in order to update their tree(s). Users who are focused on learning will come back in order to find

information on how to start learning new topics of interest as well as what topics are “hot” or new at the time.

Expansion

The first potential expansion that we would make is an open forum feature, which would allow our users to easily connect with one another in app, in order to get advice, find a study buddy or group, or anything else that might relate to their learning or otherwise. With the addition of this feature, we would also implement a report system to remove any users who may harbor malicious intent. Another feature that we may add is a one-to-one chatting system that would allow for a more private way of communication between two users.

In the future this app could be expanded in multiple ways. One such way would be with sponsored trees where a partnered company could build a learning tree relevant to their app or product, giving them exposure while providing value to our user base in the means of a useful introduction to learning the partnered company’s app.

Another way this system could expand would be through the addition of multimedia content for sharing more in depth notes including links, pictures, videos, and audio recordings. This will allow for much greater diversity in content that can be created and shared in knowledge trees.

References

Vong, Vatanak. (2019). *sample-requirements*, Vatanak Vong, https://github.com/v-vong3/csulb/blob/master/cecs_491/docs/sample-requirements.pdf