Sri Lanka Institute of Information Technology

PROJECT REGISTRATION FORM

(This form should be completed and submitted on 31st January and 1st February 2019 as per the schedule)

The purpose of this form is to allow final year students of the B.Sc. (Hon) degree program to enlist in the final year project group. Enlisting in a project entails specifying the project title and the details of four members in the group, the internal supervisor (compulsory), external supervisor (may be from the industry) and indicating a brief description of the project. The description of the project entered on this form will not be considered as the formal project proposal. It should however indicate the scope of the project and provide the main potential outcome.

PROJECT TITLE	Artificial Intelligence based Personal Computer assembling Assistant
RESEARCH DOMAIN	Artificial Intelligence
PROJECT NUMBER	24 (will be assigned by the lecture in charge)

PROJECT GROUP MEMBER DETAILS: (Please start with group leader's details)

	STUDENT NAME	STUDENT NO.	CONTACT NO.	EMAIL ADDRESS
1	H.K.S.P.Gunadasa	IT16010390	071-2902079	sajith1995s@gmail.com
2	Sewwandi E.D.D	IT15146816	077-5686572	elvitigaladilhara94@gmail.com
3	M.A.V.L Gunathilaka	IT16055186	071-5232800	virajlakshitha39@gmail.com
4	Tharaka K.K.S	IT16054578	071-0396312	tharakakk@gmail.com

SUPERVISOR

Prof. Koliya Pulasinghe		
Name	Signature	Date

CO-SUPERVISOR (will be assigned by the Supervisor, if necessary)

Name	Signature	Date

EXTERNAL SUPERVISOR (if any, may be from the industry)

Name	Affiliation	Contact Address	Contact Numbers	Signature/Date

ACCEPTANCE BY CDAP MEMBER

Name	Signature	Date

PROJECT DETAILS

Brief Description of your Research Problem:

Most of the time assembled PC does not meet the user expectations completely. Therefore people tend to assemble Personal Computers (PC) by themselves. When they are assembling a PC many difficulties occur, such as quality of products, compatibility of parts and software. In addition to that some people need to know the most suitable laptop for their requirements.

Nowadays assembling a PC according to the hardware requirements of game or software is a challenging task. It is a must to consider the compatibility of the hardware components along with the desired specifications. It is also necessary for the users to check whether software can run on the existing or assembling PC.

In real world scenarios people will choose parts based on seller's recommendations. Therefore it limits the customer's chances of being exposed to previous consumer's experiences and reviews. Thus the customer will be forced to buy a product that is not worth of the price.

When customer needs to buy suitable products for the minimal price they have to compare prices from different vendors. Because each vendor has different price for the same product. Similarly, assembling a pc under a limited budget is practically difficult to the buyer.

Moreover, finding the best laptop which suit the user requirement is inconvenient. Because user prefer being able to compare the performance and decide on which laptop to purchase. Users lack the knowledge of being able to find the software that can run on laptops.

Description of the Solution:

The solution that we propose is to build "AssembleMe", which is a platform to assist the PC assembling process and laptop comparison. This solution is a common platform that provides interactive solution to fulfill both sellers and buyers requirements.

We expect to assist the decision making process to determine the most suitable and optimal solution for PC assembling. Our main target audience will be gaming society and people who are willing to buy PCs or laptops.

We gather data from web scraping, using Application Programming Interfaces (API) and pricelists from local vendors. Also machine learning algorithms will be used for determination of compatible PC parts, laptop comparison and price optimization.

Main expected outcomes of the project:

Main expected outcome of this project is a solution provider to all the problems faced by the PC assemblers and technical operators.
Outcome of this platform will be based on the each problematic area. Therefore below mentioned solutions are the main outcomes.

- Firstly, when a user searches a specific product all the available products related to that search will be displayed. Since we will be having multiple vendors with us, customers can select and compare the prices provided and choose the best product for lowest price
- We provide a service where we give customized PC part plan to a PC part seeker who has a limited budget. When they provide the PC requirements and their budget limitations we will suggests the parts they can look into considering their limitations.
- When customer needs a part for a certain price yet if it is not available for that price we send them an email when the price drops to their expected value.
- For each product we display a summarized comment analysis extracted from social media to customer on our platform so that they can have an over role idea about the product before purchasing.
- Users can check the capability of software and games that can run on the assembled PC or laptop.
- We provide a service to assembler where they can assemble a PC according to the hardware requirements of a particular game or software.
- Users can compare two laptop models and decide on the best option.

WORKLOAD ALLOCATION (Please provide a brief description about the workload allocation)

MEMBER 1	H.K.S.P. Gunadasa – IT16010390

Assemble PC according to the system requirement (Game / Software)

In this research my part is, assemble PC with compatible parts according to the system requirement of a game / software.

Intermediate Process

- Get PC parts details by web scraping
- Identify the user requirement and categorize (game / software)
- Get system requirement of game / software by web scraping and API.
- Analyze the specification and suggest all PC parts that are compatible using machine learning algorithm.
- Check custom build pc and laptop software/game compatibility

MEMBER 2	E.D.D. Sewwandi – IT15146816

Sentiment Analysis

In this research project, my part would be analyzing the comments that are extracted mainly from Facebook. Comments will be extracted using web scraping. Relevant comments will be selected using products features.

Intermediate Process

- Identify the features that users mainly look into in each product. (Features : Brand, Version, Model)
- For each feature identify the comments and that are being placed.
- Identify the opinion of each review. That is whether it is positive or negative.
- Then analyze and summarize the results.

In order to identify the opinion of each comment I will be using a preexisting lexicon consisting of English vocabulary as I will be considering the comments in English Language.

MEMBER 3	M.A.V.L Gunathilaka - IT16055186

Price comparison, optimization and assembling of PC parts

This research part includes assembling a pc with the lowest budget, sorting pc parts according to the prices in ascending order, notifying price drops to customers if the parts are too expensive, giving the best pc part considering the features and reviews.

Intermediate Process

- Get product details from online shopping sites through their APIs and local vendors.
- Analyze product details and identify the matching pc parts.
- Process details and build a pc with the lowest budget using algorithms.
- When customers search a pc part, display the output according to the prices and notify them if the price drops to their expected price.
- Display the best pc part among others by analyzing the features

MEMBER 4	Tharaka K.K.S - IT16054578

Laptops comparison

My research part is providing to users what is the best one after comparing two laptops. In here we mainly consider about computational power of laptops, for example RAM, Processor speed, computer hard disk (Solid State Drive) and Battery life. Here we use specific algorithm for compare two laptops.

Intermediate Process

- Get user inputs from web UI
- Get laptops models according to the user inputs at real time searching (web scrapping or API services)
- Compare laptops features using algorithms.
- Suggests to user what the best laptop is.

DECLARATION

"We declare that the project would involve material prepared by the Group members and that it would not fully or partially incorporate any material prepared by other persons for a fee or free of charge or that it would include material previously submitted by a candidate for a Degree or Diploma in any other University or Institute of Higher Learning and that, to the best of our knowledge and belief, it would not incorporate any material previously published or written by another person in relation to another project except with prior written approval from the supervisor and/or the coordinator of such project and that such unauthorized reproductions will construe offences punishable under the SLIIT Regulations.

We are aware, that if we are found guilty for the above-mentioned offences or any project related plagiarism, the SLIIT has right to suspend the project at any time and or to suspend us from the examination and or from the Institution for minimum period of one year".

	STUDENT NAME	STUDENT NO.	SIGNATURE
1	H.K.S.P.Gunadasa	IT16010390	
2	Sewwandi E.D.D	IT15146816	
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4	Tharaka K.K.S	IT16054578	

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Project Topic Assessment – 2019

Research Problem:

Nowadays most of the people tend to assemble their PC'S by themselves. Thus, they face many problems when it comes to finding the appropriate parts and their compatibility. Most of the people even if they know the parts necessary for assembling they find it hard to find these parts for the prices that match their budget. Also, they have a limited number of options to select with. Even if the assemblers have the technical knowledge sometimes they might find it hard to find the software and games that can run on these systems.
Most of the time same PC part is available for different prices in different vendors. But it is a tedious task to search all the available prices and compare. In addition to that customer find I useful yet hard to find the feedback from previous customer of the same product.
Moreover, people who assemble their PC's specifically for the gaming purposes need to identify the specification for each game. For an example they need to consider the processer, motherboard, VGA, RAM and other parts necessary to play the game.

Research Area:

The main research area of the project is to assist the PC part seekers with the necessary information and solutions through Information Technology. Since the solution we provide come with different outcomes, research areas we look into will be different from one another. This platform will be an online assist for the consumers to get enrich them with information thus they will be self-sufficient to choose a product by themselves.
Artificial Intelligence
Machine Learning: Used to build algorithms in order to suggest compatible parts for the PC and when deciding on parts suiting the budget.
Sentiment Analysis: Used to analyze comment based on keywords.

Solution proposed:

AssembleMe is designed to provide solution to above mentioned problems faced by the PC assemblers.

- Firstly, when a customer searches a specific product all the available products related to that search will be displayed. Since we plan to have multiple vendors with us we can provide the customer with variety of options to select with. Therefore the customer can compare the prices provided with other vendors and choose the lowest rate.
- When a customer selects a particular PC part from our platform we will provide suggestions as to what other devices will be compatible with that specific part.
- We also plan to provide a service where we give customized PC part plan to a PC part seeker who has a limited budget. When they provide us with the PC requirements and their budget limitations we will suggests the parts they can look into considering their limitations.
- In addition to above as there will be price fluctuations we provide a service where when customer needs a part for a certain price yet if it is not still not available for that price we send them an email when the price drops to their expected value.
- For each product we will display a common analysis of customer review extracted from social media on our platform so that the customer can have an over role idea about the product before purchasing.
- They also can check as to what software and games that can run on the PCs that they have assemble as we plan to keep a record of the PCs they have assembled via our platform. Even if they haven't done the assembling through our platform still they can use the above function through AssembleMe.
- We provide a customized function where a person searching PC parts for a specific game can find the necessary parts. These parts will be recommended by our platform considering the requirements for each game. Data extraction will be done based on the processor, VGA and RAM utilizing real time data processing from the gaming website available.

Technologies to be used:

Python and libraries for machine learning
NOSQL Databases
Web scraping
AngularJS for front end development.

Team Members:

Student Name	Student ID
H.K.S.P. Gunadasa	IT16010390
Sewwandi E.D.D	IT15146816
M.A.V.L Gunathilaka	IT16055186
Tharaka K.K.S	IT16054578

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Acceptable: YES/NO

Changes proposed:

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_____
_____

Any other Comments:

_____
_____
_____

Approved by CDAP Group:

Member's Name	Signature
Prof. Koliya Pulasinghe	
Dr. Anuradha Karunasena	
Mr.Indraka Udayakumara	

Important:

1. According to the comments given by the panel, do the necessary modifications and get the approval by the **same panel**.
2. If the project topic is rejected, find out a new topic and inform the CDAP Group for a new topic pre-assessment.
3. A form approved by the panel must be attached to the **Project Charter Form**.