Project Proposal:
Clean energy calculator

Eq5

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I. Introduction

With the usage of energy every day there will be a big demand for energy, with some countries deciding to use fossil fuels or Nuclear energy, it will cause a great deal of damage to the environment.

With the Clean energy calculator, we will be able to calculate and estimate the best optimate energy source which will give the move optimal and efficient flow of energy without harming the environment. Due to the diverse environment we live in we will use the Clean energy calculator to determine the best natural energy source for a specific area for those that will utilize that place to understand the best method of power to utilize.

The clean energy calculator will depend on different factors such as the flow of water, wind speed, time of day light exposed to, and Heat generated over time. Other factors will include the water wheel size, temperature, and time.

II. Methodology

We are able to accomplish this by using the Java programming language to create a program that will calculate the energy output of a certain natural resource and give an estimated amount of energy per hour. We will have five different types of codes for the program, one of the main inputs, and the other will be for calculations for each clean energy source. We will combine the five different codes to create one working program for the user to access.
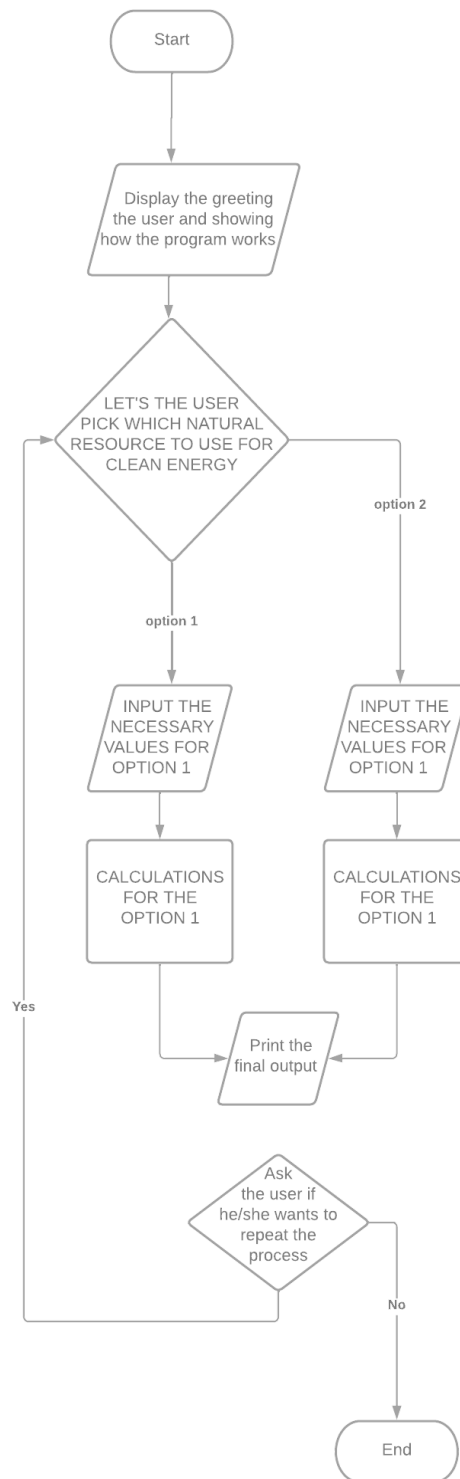
One factor we have to consider is the calculations for each clean energy source since all of them are unique so we will have to consider the resources and accessibility of each resource and account for their different factors. We will limit our calculations to how much energy a natural resource could produce, since this is difficult to apply to water we will include the water wheel in the calculations for this program.

III. Project Description

IPO (Input-Process-Output)

Water wheel, Estimated Power Output	Pww=H*Q*g	Liters per hour
Wind speed, Estimated Power Output	1.1507794 * Windkt	Miles per hour
Temperature, Estimated Power Output	$\frac{Q}{\Delta t} = -kA\frac{\Delta T}{\Delta x}$	Heat per hour
Time of day(Military Time), Estimated Power Output	Watts x time/ 1000	Kilowatts per hour

Flowchart

```
                    ┌─────────┐
                    │  Start  │
                    └────┬────┘
                         │
                         ▼
              ╱──────────────────────╲
             │  Display the greeting   │
             │  the user and showing   │
             │  how the program works  │
              ╲──────────────────────╱
                         │
                         ▼
                   ◇ LET'S THE USER ◇
                   PICK WHICH NATURAL
                   RESOURCE TO USE FOR
                      CLEAN ENERGY
                                          option 2
        option 1

      ╱──────────────╲        ╱──────────────╲
     │   INPUT THE    │      │   INPUT THE    │
     │   NECESSARY    │      │   NECESSARY    │
     │  VALUES FOR    │      │  VALUES FOR    │
     │   OPTION 1     │      │   OPTION 1     │
      ╲──────────────╱        ╲──────────────╱

      ┌──────────────┐        ┌──────────────┐
      │ CALCULATIONS │        │ CALCULATIONS │
      │   FOR THE    │        │   FOR THE    │
      │   OPTION 1   │        │   OPTION 1   │
      └──────────────┘        └──────────────┘

                     ╱──────────╲
                    │  Print the │
                    │ final output│
                     ╲──────────╱

                    ◇ Ask ◇
                    the user if
                    he/she wants to
                    repeat the
                    process
                                    No

                    ┌─────────┐
                    │   End   │
                    └─────────┘
```
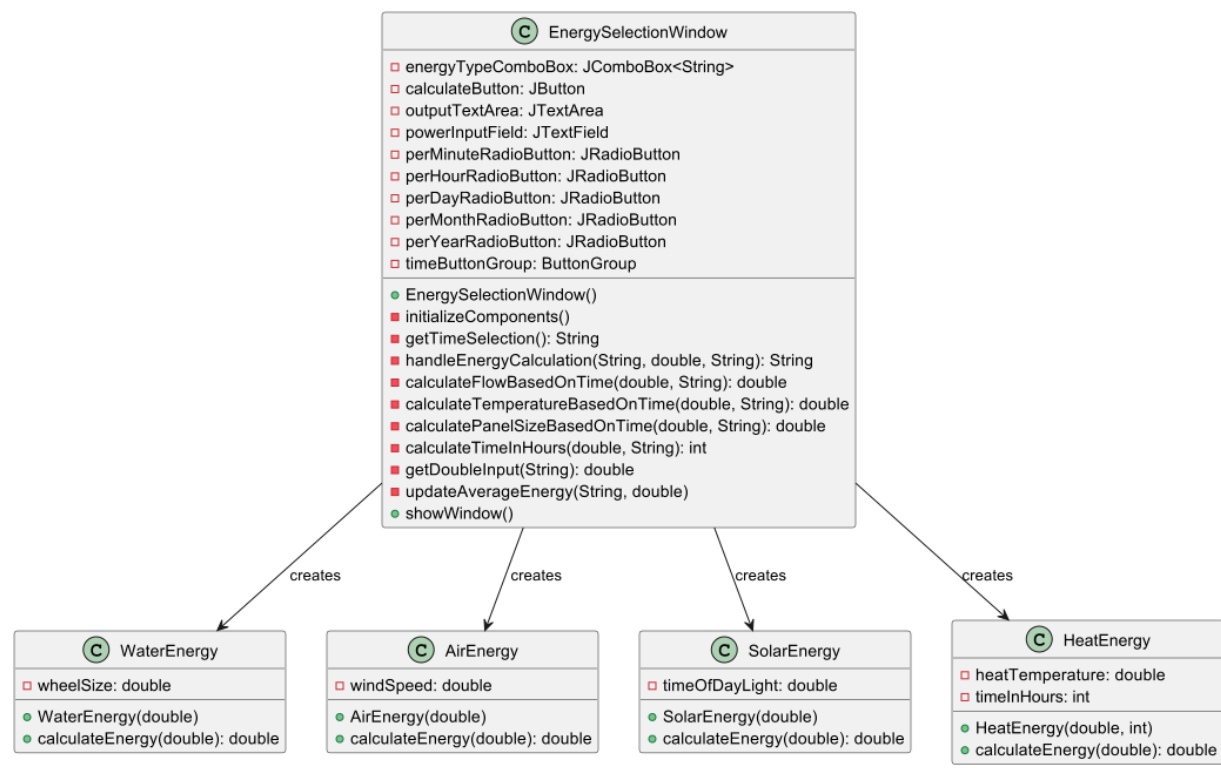
For the IPO, the group used the natural resources needed for the Clean Energy Calculator for the input of the program and each of their equations to be used in the program as well. Now for

the flowchart, the group constructed the flow of the program for the user and the processes that will be made while the user is using the program.

Class Diagram

IV. Deliverables

Gantt Chart:

Clean Energy Calculator Java Program ⌄ ☆   ◯ Set status

≡ Filter   ↑↓ Sort   ⦸ Hide

To do   + ⋯

⊘ Follow - Up
Medium   Off track

👤 Aug 1 – 8

+ Add task

Doing   + ⋯

⊘ Implementation
High   On track

👤 Today – Jul 31

+ Add task

Done   + ⋯

✓ Planning
Low   Off track

OZ Jun 12 – 26   1 💬

✓ Research
Medium   Off track

OZ Jun 27 – Jul 13

✓ Design
High   Off track

👤 Jul 15 – 21

+ Add task

Planning

Assignee	OZ Oshan Zaballero ✕ Recently assigned ⌄
Due date	📅 Jun 12 – 26 ✕
Projects	● Clean Energy Calculator Java Progr... Done ⌄
	Add to projects
Dependencies	Add dependencies
⊙ Priority	Low
⊙ Status	Off track

Description

This task is to help us plan and brainstorm ideas on what are we going to do for the Final Project. Here we discuss the different ideas, opinions and even suggestions.

Research

Assignee	OZ Oshan Zaballero ✕ Recently assigned ⌄
Due date	📅 Jun 27 – Jul 13 ✕
Projects	● Clean Energy Calculator Java Progr... Done ⌄
	Add to projects
Dependencies	Add dependencies
⊙ Priority	Medium
⊙ Status	Off track

Description

Research about the idea chosen so the group researched the different properties for the different type of clean energies and also how they are calculated manually and automatically.

Design

Assignee	KU Kae Anastasha Uy ✕
Due date	📅 Jul 15 – 21 ✕
Projects	● Clean Energy Calculator Java Progr... Done ⌄
	Add to projects
Dependencies	Add dependencies
⊘ Priority	High
⊘ Status	Off track

Description

For this task, the group now designed the program and its features. Having a plan and research we can now design the program using Java with the correct labels, calculations and outputs.

✓ Mark complete

Implementation

Assignee	KU Kae Anastasha Uy ✕
Due date	📅 Today – Jul 31 ✕
Projects	● Clean Energy Calculator Java Progr... Doing ⌄
	Add to projects
Dependencies	Add dependencies
⊘ Priority	High
⊘ Status	On track

Description

The task is to implement the design for the Clean Calculator Program and to have test runs for it. Here we can also gather data, results that can be also compared if it got the correct calculation and output.

The chart below shows an estimate of how the group will plan, design and implement the project of the Clean Energy Calculator. For the last week of June 2023 , the group will choose a theme/idea given by the professor and plan how they will make the project possible. For the entirety of July, the group will research all about Clean Energy and how it can be calculated by the factors of different natural resources. After researching, the design of the project comes next. The group will design how the calculations can be made using Java and how many files needed for the project. Designing can also help the group analyze the project more on a perspective from the user who will be going to use it. After this, the group proceeds for the implementation of the project. The group will try to compile the program codes used for the Clean energy Calculator and also make a trial error if the program works properly. Lastly, the follow-up part will be reserved for any mistakes that were overlooked or any improvements that can be made before the deadline.

V. Evaluation

The metrics we will be using for each natural energy source will be liters, miles, heat(campfires or natural heat), time of day, the size of the water wheel in diameters, and kilowatts. They will all follow the same time frame of power per hour, the reason for this is the be

able to make a noticeable comparison between all the different natural energy sources and conclude the best energy source for the specific location.

VI. Conclusion

With other smaller and more underdeveloped parts of the world lacking the ability and resources to utilize the project will help researchers or outdoor campers to optimize their resources and use the best resources available to them at the moment. This program will be available for all classes to utilize and create an easier way to plan ahead.