Current Situation

As all graduates from UPRM know, chemistry is a required subject. Many of these UPRM students do not course majors surrounding chemistry, and have many difficulties or conflicts when studying for these required chemistry courses. Those that are within the field of chemistry are always searching for ways to make their studying and workflow more efficient. We are designing an application that can receive a basic chemistry problem or question, analyze it, solve it and provide some kind of explanation. We will design a lexer that can read the chemical formulas and symbols from a text input or image. We are still in the planning phase for the structure and look for our application.

Needs & Ideas

There is a need for students, educators, and researchers to help them facilitate and solve their chemistry problems.This app is designed in a simple yet understandable way in order to improve the problem solving time of said users so they can gain a deeper understanding of the fundamental materials, concepts, and methods they will need in their future careers.

In order to satisfy their needs, our team will design an application that lets the user photograph and scan chemistry problems using their phone camera. The app should be able to solve the chemistry problems and show the step-by-step process and solution to the problem.

Concept and Facilities

The user can choose the branch/level of chemistry they need help with. They can input images of problems or input the equations and symbols manually. The app has other tools and information that The app will include tools to get the user help solving and explaining their chemistry problems via a photo they take, a picture they already have or manually written problems.

Synopsis

Many students in today's day don't understand or have difficulties learning chemistry or have difficulties on how to solve chemistry problems whereas they don't understand the book and their examples very well or maybe they want to see some solutions to see more or less how the problems are solved and what formulas or ideas it takes to solve the problem in question. The majority of the professors in different schools prefer the students to have the chemistry books as their guide but maybe it's not enough and it's hard to understand. The idea for this application is to help the users solve different problems in many ways step by step so that the users have a better idea of how the problem is solved or have different ways of solving them and learning from it.

Assumptions & Dependencies

It is assumed that the user utilizing the app has a stable internet connection and a smartphone, tablet or computer so the application runs properly at the comfort of home, school or even at a workplace. The application is completely dependent on the internet connection. If such dependency is not provided then the application is useless.

Implicit & Derivative Goals

The main objective of our system is to perform in depth analysis and calculations of any chemical problem. We will achieve multiple other goals as we implement our system, and supply it with the required information. For example, before performing complex calculations the system must be able to identify the specific symbols and subscripts within chemical formulas. The system must contain all relevant information on each theorem and property and then apply this information. A goal derived from the original and implicit objective, is that we have to design a user interface that is easy to manipulate and understand, by people with some knowledge on chemistry.