



# **Project Proposal**

## **Phase #1**

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# Introduction

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## Project Motivation

During September 2017 hurricane Maria hit Puerto Rico leaving the economically depressed island with an environmental and human crisis. Almost 100% of Puerto Rico's electrical grid was damaged and millions of people suffered the consequences in the following months with no access to essential utilities. This crisis has aggravated by a lack of government organization to restore and prioritize the recovery efforts. For this reason, Lumos is a language that can be used to organize resources and visualize the current recovery status of Puerto Rico utilities like water, electricity, among others. In its core, it will be used to generate interfaces based on the government needs. For example, in a specific region emergency reports will encompass electricity, water and food sources. This will help gather only the important information needed. On the other hand, being able to display this data visually will be helpful not only for the people but to the government as well. Also, creating an accessible language in order to report this emergencies will improve the communication between our government and the people.

## Language Features

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Lumos is a program developed to assist in the distribution of information regarding the areas affected by Hurricane Maria. This would help maintain a database with accurate information on which sectors on the island have principal utility services. The information would be acquired through user input. It will be a very basic language with simple and common commands to facilitate data entry.

- Analysis report about municipalities
- Add sector information regarding power or water utility
- Change sector information regarding power or water utility
- Connection to databases are done automatically.

## Examples of a program

Description	Input	Output															
<p><b>analyse</b> &lt;municipality&gt; &lt;sector&gt; &lt;option&gt; - Returns information about the area selectected in the first parameter and second. Sector parameter is optional. In option parameter choose between power, water or both.</p>	<p><i>analyse Mayaguez power water;</i></p>	<table> <tr> <td>Barrio:</td> <td>Power:</td> <td>Water:</td> </tr> <tr> <td>Algarrobo</td> <td>yes</td> <td>no</td> </tr> <tr> <td>Bateyes</td> <td>yes</td> <td>yes</td> </tr> <tr> <td>Guanajibo</td> <td>no</td> <td>yes</td> </tr> <tr> <td>Limon</td> <td>no</td> <td>yes</td> </tr> </table>	Barrio:	Power:	Water:	Algarrobo	yes	no	Bateyes	yes	yes	Guanajibo	no	yes	Limon	no	yes
Barrio:	Power:	Water:															
Algarrobo	yes	no															
Bateyes	yes	yes															
Guanajibo	no	yes															
Limon	no	yes															
<p><b>report</b> &lt;municipality&gt; &lt;ward&gt; &lt;option&gt; - Lets the user submit information about a specific sector of a municipality to update its corresponding data.</p>	<p><i>report Canovanas Palma Sola power no;</i></p>	<p>Data successfully reported.</p>															
<p><b>showstatistics</b> &lt;municipality&gt;</p>	<p><i>showstatistics Comerio;</i></p>	<p>Comerio statistics: Power: 60% Water: 90%</p>															

Code Example:

```

municipality m = "comerio"; //Create and initialize variable to hold the municipality element
municipality n = "fajardo"; //Create and initialize variable to hold the municipality element
region k = (m,n); //Create a region with two municipality variables.
report m "cejas" power yes;
showstatistics(k); //Show statistics for all municipalities contained in the region.
municipality o = "san juan"; //Create and initialize variable to hold the municipality element
addmunicipality(k,o); //Add municipality to a region.
showstatistics(k); //Shows a table with power and water information of the
corresponding region.

```

## Implementation requirements and tools

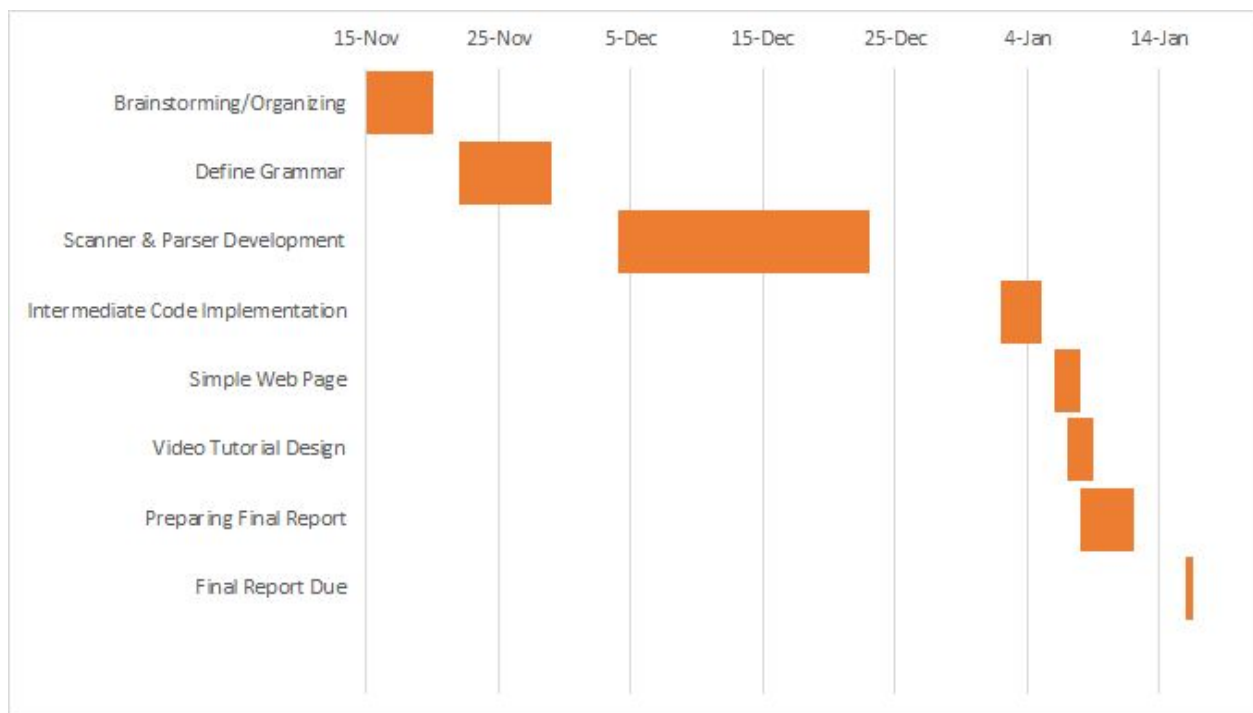
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We are planning for this programming language (Lumos) to use minimum requirements and to be as easy to implement as possible. To reach this goal, we are going to code in Java (JDK/JRE), and use JavaCC for parsing. The IDE shall be Eclipse IDE / Text Editor.

# Project plan and timeline

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## Project Plan



# Project Timeline

