**ACM Android Project for change: Window Upgrade Utility**

**Problem Specification:**

Let's face it. People have to pay for heating and A/C. It's not cheap either. However, a large amount of heat loss (Winter) and heat gain (Summer) come from windows. Some estimates go so far as to say nearly one-third of a consumer's heat bill comes from heat lost through windows. While windows may have an expensive up front cost, the benefits of installing good quality windows is indispensable. From CO2 offsets to energy savings to a warmer (or cooler) house, the trade-offs are undoubtedly worthwhile. The aim of this project is to create an app that helps users to become more informed of why they should install new windows in their house.

**Step 1: Gather User Input**

Ask user for their Zip Code and then poll an outside API, such as Google to gather the city and state name to display back to user. Also, grab information from outside API for step 2 to display averages for heating costs as well as cost per unit for electric kWh and gas (???).

**Step 2: Gather current heating costs from user.**

Ask the user if they are using electric or gas for the heat source of their apartment and then display the information gathered in step 1 to show the cost per kWh for electricity and cost per unit (???) for gas heat in the zip code region. Show average expense for customers in zip code area, and also have user input their average monthly expense.

**Step 3: Gather savings information from window replacement.**

Ask user what type their window is (wood/vinyl frame) and the qualities of the window (single/double/triple pane).

Get dimensions of the window from the user either through drop down populated with popular sizes, or from a text box. Could use a radio button to allow the user which option they want (popular or custom size).

Send data for processing by outside API to figure out amount of savings by upgrading and the CO2 offset obtained.

**Step 4: Show results of savings and CO2 offsets.**

Display graphs which show the amount of savings the user obtains after 1, 5, and 10 years, as well as how long to get a return on investment. Additionally, display the CO2 offset as reported by an agency such as Dept. of Energy or EPA.

**Step 5: Pull top 5 results from “Window Sales near [Zip]”**

Choose a search engine API to use to poll the top 5 results of the search query “Window Sales near [Zip Code]” and then display to user in the form of web links on their mobile device so they can go shopping.

**Additional Ideas:**

Gather average weather info from sources such as http://weather.com to find out average temps for the area to give more customized estimates on how much savings truly is obtained for heating and A/C.

Gather information on appreciation value of the house by upgrading windows.

**Ideas for pics of savings:**

Use charts with different colors for different ranges, such as an area chart which plots savings over time.

Plot chart to show time to get ROI (Return on Investment).

Plot chart of CO2 offsets.