ECCS 1621 – Programming 2

In-Class Activity: Discussing Impact and Programming for Diversity

Part 1:

Computer Science is constantly impacting the world around us – both positively and negatively. When we design software, it is important that we take those impacts into consideration. Additionally, we should be mindful that not everyone uses the software in the same (age, gender, race, socioeconomical level, background, familiarity with technology, physical, location, language, beliefs, knowledge – just to list a few).

To begin the discussion, we will be looking at some recent products / inventions that are regarded highly (i.e., “best”). For each of these we will consider the following questions:

1. Who does this technology/solution benefit? How do they benefit? How many people does it benefit?
2. Who may not be able to use this design?
3. What is the harm that may come from this solution?
4. Who paid for the design to be developed? Why?
5. Are the people benefiting from the design the people who are paying for the cost?

The instructor will go over the first one with you. The second one you will discuss in groups of 3-4 students. After those small group discussions, each group will share an observation that relates to one of the 5 questions.

Part 2:

In groups (of 3-4), look at the following GUI:

A picture containing rectangle data entry form for first name, last name, user name, and password.

Description automatically generated

Download the code from Moodle. Create an (empty) new project in IntelliJ – please pay attention where you save the project. Find your src folder within your project on your computer. Take the code files you downloaded and put them into the src folder of your project. They will update in IntelliJ – but it may take a minute or two.

In groups, brainstorms various issues people might have with the above GUI. Brainstorm ways to alter the GUI to be more accessible to all. Brainstorm how to make the GUI work and be comfortable for a diverse audience.

Edit the code to make at least 3 of the changes you brainstormed.

Try out what happens when you change the OS settings for those with visual issues. What happens? How does your program work? How does it look? Can you think of other features that the OS has that would make the GUI better for a wider/larger audience. Consider not only visual (hearing, race, limited mobility, etc.). Brainstorm changes.

Now update your program (again) to improve based on your experiment with the settings and additional brainstorming.

Next, brainstorm ways you could improve the design of the output for those with visual issues to “see” and understand the information. Try to make it work for a variety of issues. (Keep in mind the techniques they will be using via the OS). Program and test your new design.

**Submit a screen shot of your redesigned GUI, and a (minimum) paragraph justification of design. We will be doing a Gallery Walk of the ideas during the first 10 minutes of class on Monday.**

KEEN Student Objectives:

* Explore multiple solution paths
* Consider a problem from multiple viewpoints
* Present technical information effectively
* Create solutions that meet customer needs
* Identify the needs and motivations of various stakeholders