**CS****4001 CW3**

**Gadget Shop**

**Lucas Goncalves**

**CS4001 Programming**

**Table of Contents**

[**Introduction**](#_Introduction)**……………………………...3**

[**Evaluation of work**](#_Evaluation_of_work)**....................................4**

[**Error Detection/Correction**](#_Error_Detection/Correction)**……………..5**

[**Reflecting on what I learnt**](#_Reflecting_on_what)**.......................7**

[**Conclusion**](#_Conclusion)**..................................................3**

# Introduction

In this project I built a program called Gadget shop where the objective is to create 4 classes (Gadget, Mp3, Mobile, Gadget shop) the mobile and mp3 are subclasses of Gadget and the Gadget shop is a GUI (Graphic User Interface) which will store the details of gadgets created in an array list. I have chosen to use IntelliJ from JetBrains as I am familiar with their program from using PyCharm especially when I was finishing creating the classes on BlueJ it would sometimes freeze and close on my pc prompting me to switch to a different IDE that can handle more code.

**How would the code work?**

The Gadget Shop would store the information from the two devices Mobile and MP3 each has their own unique variables (Mobiles=Credit and Phone Calls) (MP3 = Memory and Download Music) You have to input variables that are both needed for the devices which are Model(str),Price(double),Weight(int)and Size(str) if all these data fields aren’t entered then error messages will pop up respective to which error it is. After making sure that you have entered each data field correctly you will have the ability to download music or make a call depending on which device you are using.

**What will this report contain of?**

This will contain a short description of what the program objectives are and what is the endgame. An evaluation of the coding was written, analyzing my performance and my efficiency while reflecting on my work throughout the project. Examples of errors that occurred while coding and how I fixed the error. What I have learnt from this assignment and finally a conclusion about the whole project.

# Evaluation of work

**What are the objectives of this project?**

To create 4 classes in java that are all linked together. Two of them will be subclasses to a main class named Gadget. The last class will be a GUI (made with Java Swing) making the whole code accessible for the user by creating text fields and buttons along with an array list of the devices made with quality-of-life features i.e. Error Messages.

**The data gathered for this project.**

I used a lot of breakpoints to focus on one or numerous blocks of codes to figure out the problem of errors and to make sure that everything is being written correctly which would benefit me in the long run. The research I did was mainly on YouTube as I searched up videos how to set up JDK on my pc, how to use Java Swing effectively (making text fields, buttons, array lists and notifications) and learning how to position them correctly in the GUI. I had to also research how to link classes together and how to make them work together.

I intensively researched the block of codes I wrote and made sure that they were efficient as possible to minimize eye jargon and will make it easier for me to understand and search for problems way quicker.

# Error Detection/Correction

public String addCredit(int amount) {  
  
 if (amount <= 0) {  
 // Invalid amount entered.  
 System.*out*.println("Error! Invalid amount entered. Please enter a value greater than zero.");  
 return "Error! Invalid amount entered. Please enter a value greater than zero.";  
 }



A syntax error.

In this code from the first line, I opened a set of parentheses and forgot to close it at the end creating a syntax error. This was the simplest of errors that I made while coding this project.

A screenshot of a computer program

Description automatically generated

A compile – time error

In this code I wrote the wrong variable for duration as I got it mixed up with Size after hours of coding and for some reason I couldn’t find I for a long time as all the error was saying was int was the first type and now I made it string and me thinking it was the size variable I double checked my size data type and they was all string until I check all the variables mobile then I saw that the error and changed it thus fixing the code. After doing more research why this was an error because I was using the < operator which is a mathematical operator hence it can’t be used with non-mathematical variables hence why string isn’t acceptable.

// Initializing buttons  
this.addMobileButton = new JButton("Add Mobile");  
this.addMobileButton.addActionListener( -> addMobileActionHandler());



In this code while making the GUI I kept getting an expression error as I thought I made it, so ActionListener is defined. After doing research I found out that I was using a lambda expression when I should’ve been making it into an object.

// Initializing buttons  
this.addMobileButton = new JButton("Add Mobile");  
this.addMobileButton.addActionListener(e -> addMobileActionHandler()).



In this I defined an anonymous inner class that implements the ActionListener interface. The actionPerformed method is overridden to call the addMobileActionHandler method when the button is clicked.

# Reflecting on what I learnt

In this project I’ve learnt so many ways to code such as using Java swing such as making buttons, array lists, notifications, text fields etc., learning how to extend classes. How to give inheritance to certain classes. How to make code less redundant as well was a massive factor as it made the whole code overall easier to read and scan. I also learnt how to write pseudocode for this project as I never done it before which helped me understand my code better and made me think why I truly wrote this block of code and is it needed.

# Conclusion

In the end this project consisted of a lot of try and error methods, intensive research on how to use Java for this project, how to comment properly to make sure whoever reads it has a good understanding of the code. Altogether this project has been very enriching for me and my coding journey.