



**Middlesex
University
Mauritius**

**Module: CST 1510- Programming for
Data Communication and Networks**

2020 September Intake

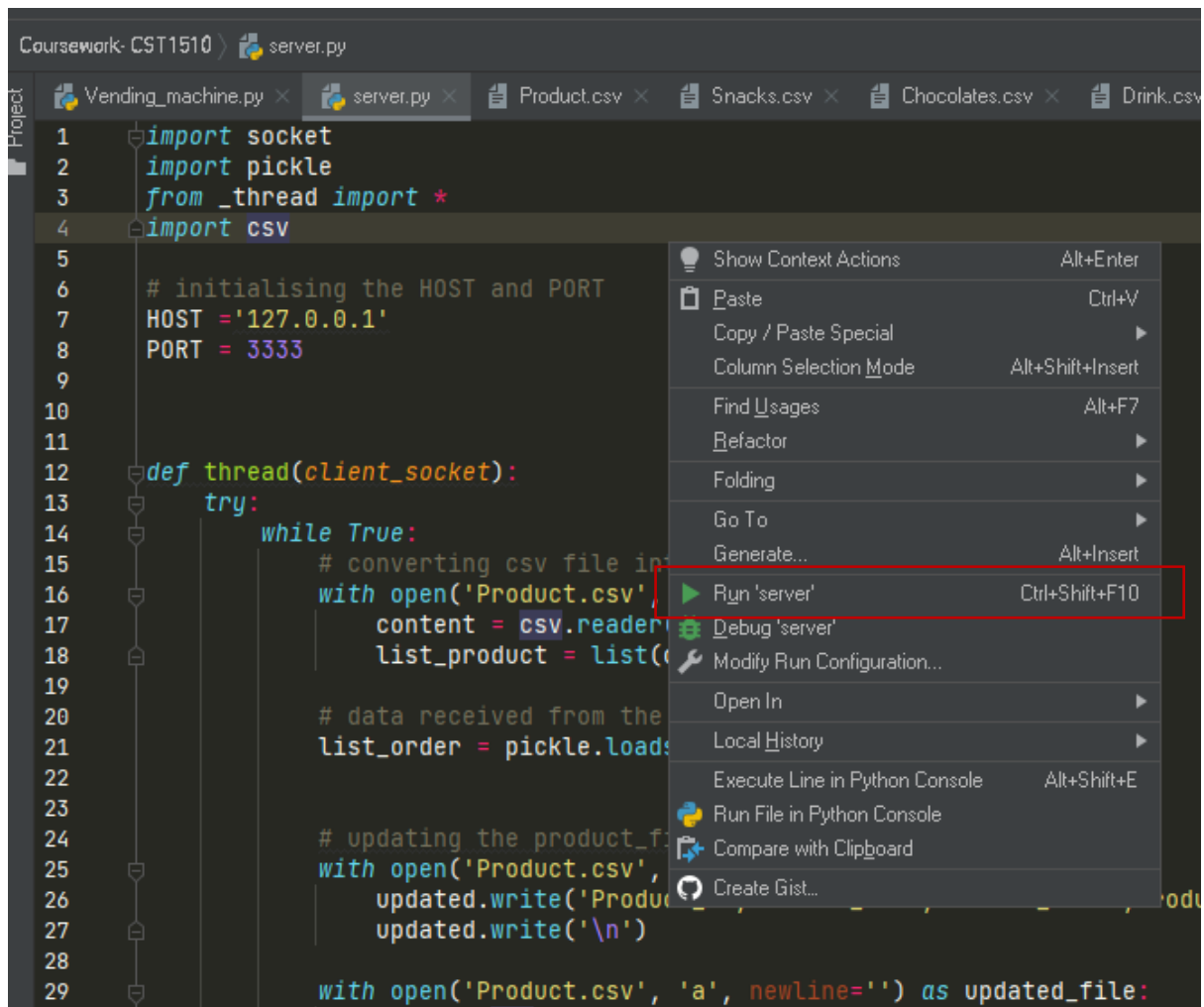
Final Coursework – Vending Machine

Running Instruction

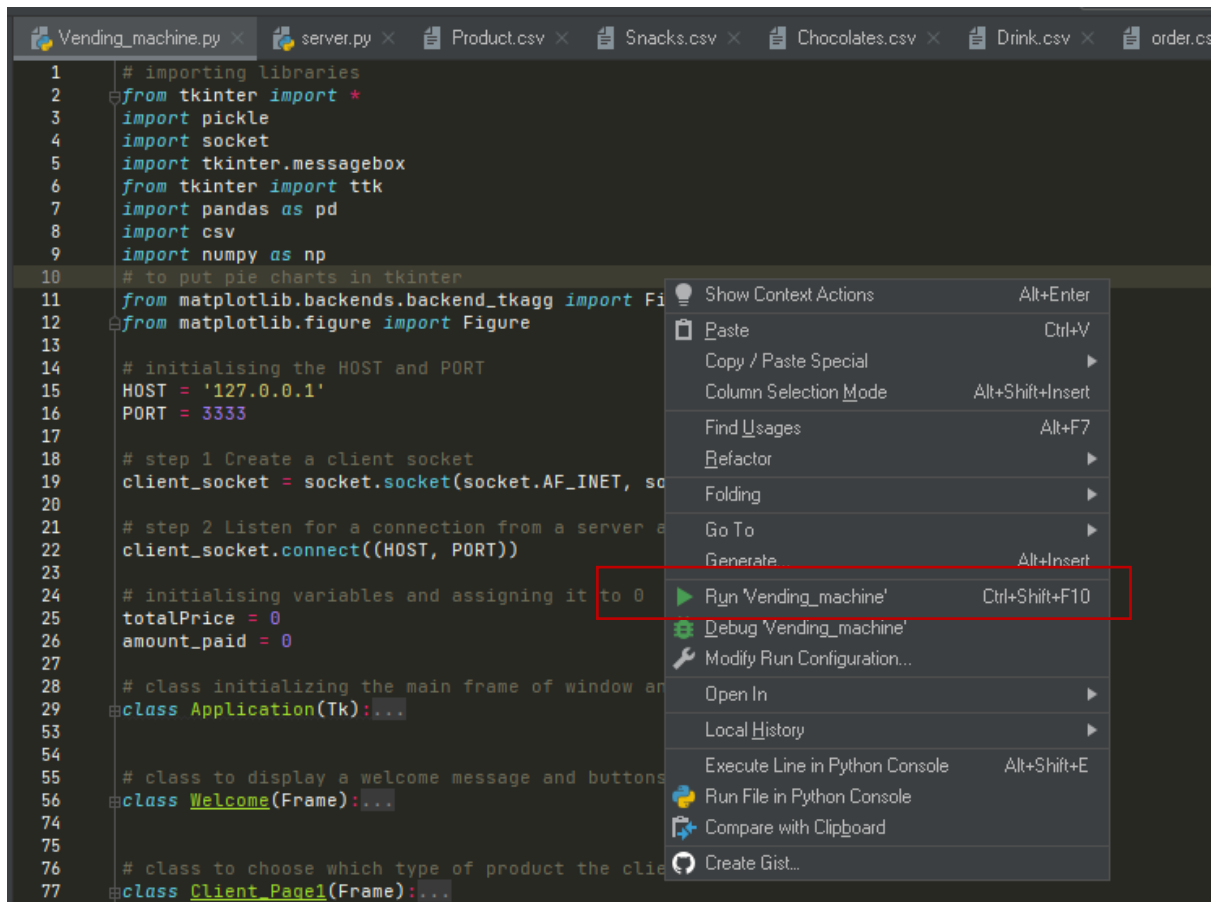
Student Number: M00734701

Due Date: 9th April 2021

Step 1: Run the server.py



Step 2: Run the Vending_machine.py

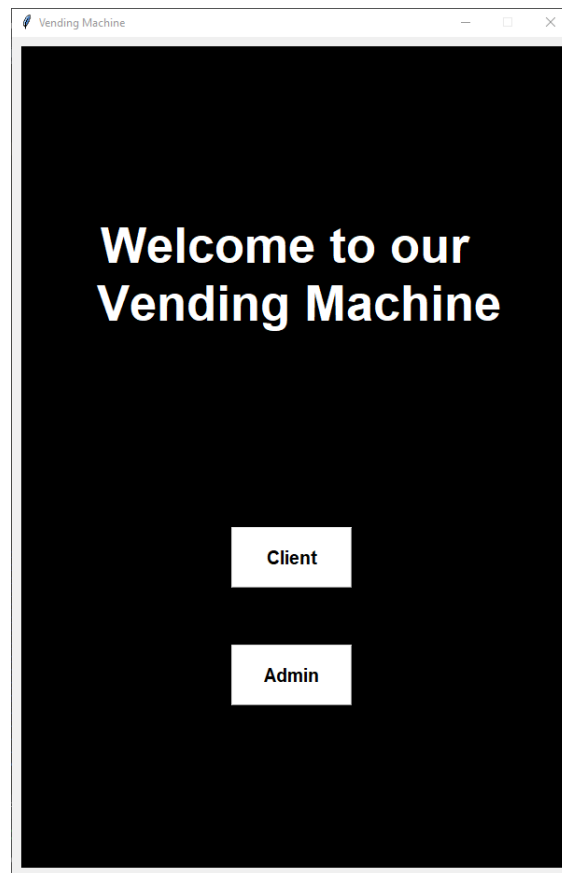


The screenshot shows a code editor with several tabs open: Vending_machine.py, server.py, Product.csv, Snacks.csv, Chocolates.csv, Drink.csv, and order.csv. The Vending_machine.py file is active, showing Python code for a vending machine application. A context menu is open over the 'Run' button (a green play icon) in the toolbar. The menu includes options like 'Show Context Actions', 'Paste', 'Copy / Paste Special', 'Column Selection Mode', 'Find Usages', 'Refactor', 'Folding', 'Go To', 'Generate', 'Run \'Vending_machine\'', 'Debug \'Vending_machine\'', 'Modify Run Configuration...', 'Open In', 'Local History', 'Execute Line in Python Console', 'Run File in Python Console', 'Compare with Clipboard', and 'Create Gist...'. The 'Run \'Vending_machine\'' option is highlighted with a red rectangle.

```
1 # importing libraries
2 from tkinter import *
3 import pickle
4 import socket
5 import tkinter.messagebox
6 from tkinter import ttk
7 import pandas as pd
8 import csv
9 import numpy as np
10 # to put pie charts in tkinter
11 from matplotlib.backends.backend_tkagg import FigureCanvasTkAgg
12 from matplotlib.figure import Figure
13
14 # initialising the HOST and PORT
15 HOST = '127.0.0.1'
16 PORT = 3333
17
18 # step 1 Create a client socket
19 client_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
20
21 # step 2 Listen for a connection from a server
22 client_socket.connect((HOST, PORT))
23
24 # initialising variables and assigning it to 0
25 totalPrice = 0
26 amount_paid = 0
27
28 # class initializing the main frame of window and canvas
29 class Application(Tk):
30     def __init__(self):
31         self.title("Vending Machine")
32         self.geometry("400x400")
33
34         # class to display a welcome message and buttons
35         class Welcome(Frame):
36             def __init__(self, master):
37                 super().__init__(master)
38                 self.pack()
39                 self.welcome_label = Label(self, text="Welcome to the Vending Machine")
40                 self.welcome_label.pack()
41                 self.button1 = Button(self, text="Select Product", command=self.select_product)
42                 self.button1.pack()
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44             def select_product(self):
45                 # class to choose which type of product the client wants
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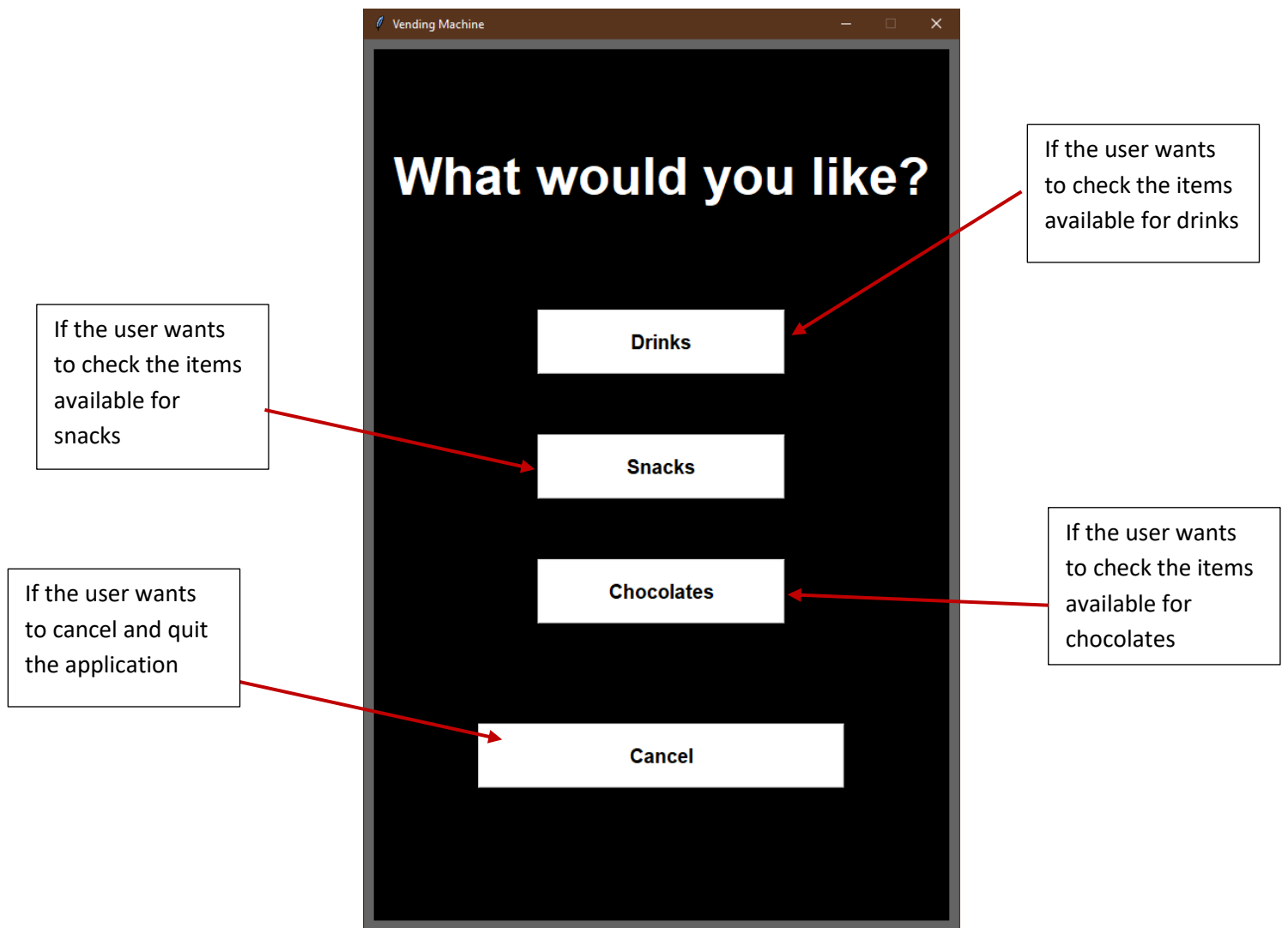
How to use the application:

1. Welcome Page:



If the user wants to buy product, he is invited to click on the button **Client**. If he wants to check the order and update it, he can click on the button **Admin**, but only if he has the credentials (username and password).

2. Client:



2.1. Drinks:

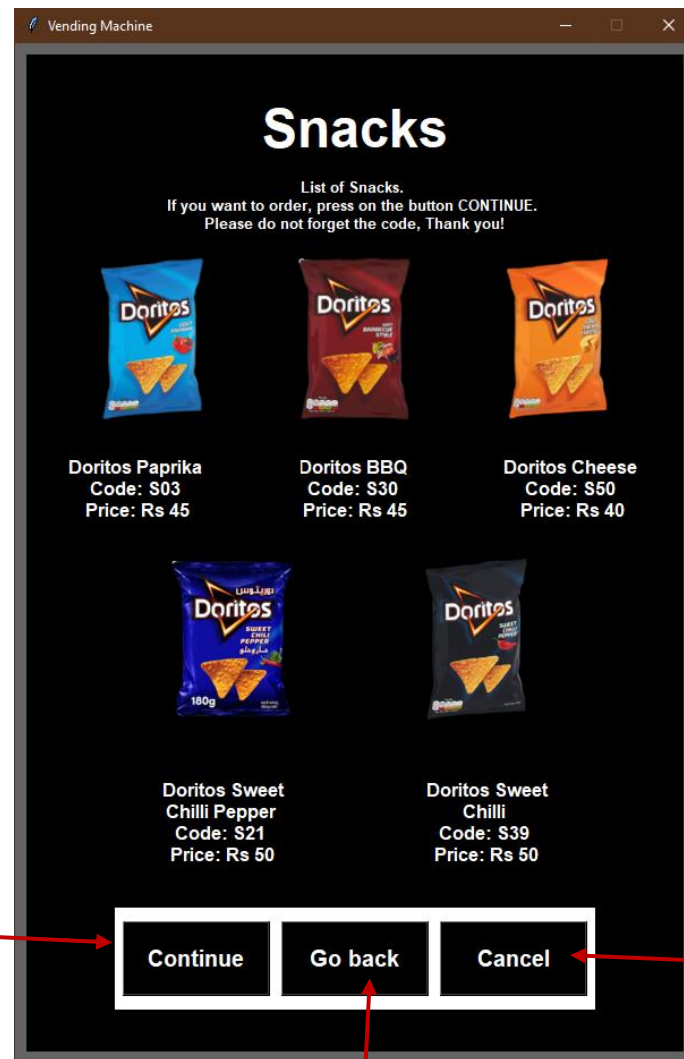


If the user has chosen his product and wants to give the order

If the user wants to cancel and quit the application

If the user wants to go back to the window where he had the options to choose either drinks, snacks or chocolates

2.2. Snacks



If the user has chosen his product and wants to give the order

If the user wants to cancel and quit the application

If the user wants to go back to the window where he had the options to choose either drinks, snacks or chocolates

2.3. Chocolates



If the user has chosen his product and wants to give the order

If the user wants to cancel and quit the application

If the user wants to go back to the window where he had the options to choose either drinks, snacks or chocolates

2.4. Order Window:

The screenshot shows the 'Vending Machine' application window. The main title is 'Order'. Below it is a section titled 'Enter Details' with two input fields: 'Product Code:' (containing 'C05') and 'Quantity:' (containing '3'). Below this is a 'Bill' section with a table showing the current order items. At the bottom of the bill section is a 'Total Price: Rs. 240.0' label. Below the bill section is a 'More..' section with several buttons: 'Add Another', 'Delete', 'Reset', 'Cancel', 'Update', 'Select', and 'Finish and Pay'. Red arrows point from text boxes to various elements in the interface.

Entry box to enter the quantity the user wants to order

Entry box to enter the code of the product the user would like to order

Table where the order will be displayed.

Button to add a product for order

Button to cancel the order and quit the window

Button to delete a product from the order

Button to update the quantity ordered of a product

Button to reset the order

Button to select the order

Button to confirm the order and proceed to the payment

Button to display the list of available product with their respective codes, name, price and quantity

| Product Name | Quantity | Product Unit Price | Product Total Price |
|--------------|----------|--------------------|---------------------|
| Mars | 3 | 70 | 210.0 |
| Redbull | 2 | 15 | 30.0 |

| Product ID | Product Name | Product Price | Product Quantity |
|------------|------------------------|---------------|------------------|
| C05 | Mars | 70 | 20 |
| C46 | DairyMilk | 80 | 20 |
| C40 | Twix | 55 | 14 |
| C45 | KitKat | 60 | 9 |
| C32 | Crunch | 60 | 6 |
| S21 | Doritos Sweet Chilli P | 50 | 5 |
| S20 | Doritos Sweet Chilli | 50 | 9 |
| S30 | Doritos BBQ | 40 | 6 |
| S50 | Doritos Cheese | 40 | 15 |
| S03 | Doritos Paprika | 45 | 3 |
| D39 | Monster | 20 | 11 |
| D23 | Coke | 30 | 8 |
| D10 | Fanta | 25 | 17 |
| D15 | Sprite | 25 | 4 |
| D42 | Redbull | 15 | 5 |

2.5. Finish and Pay window:

The 'Finish and Pay' window displays a bill and payment options. The bill section is titled 'Bill' and includes a welcome message 'Welcome to Our Vending Machine'. It contains a table with the following data:

| Product Name | Qty | Individual Price | Total Price |
|------------------------------|-----|------------------|-------------|
| Mars | 3 | 70 | 210.0 |
| Redbull | 2 | 15 | 30.0 |
| Total Bill Amount :Rs. 240.0 | | | |

Below the bill, there is a 'Payment type selection' section with the prompt 'Select the payment type:'. It features three buttons: 'CASH', 'CARD', and 'Cancel'.

Label to display the receipt

Cash button if the user wants to pay by cash

Card button if the user wants to pay by card.

The pin is 0000

If the user wants to cancel and quit the application

The user will have to check the amount before confirming the payment

The 'Payment by Cash' dialog box shows the total price of 240.0. It lists several denominations with checkboxes: Rs.1000, Rs.500, Rs.200, Rs.100, Rs.50, and Rs.25. To the right of these are input fields for the quantity of each denomination. Below the list, there is a field for 'Amount entered: Rs.' and three buttons: 'Cancel', 'Check Amount', and 'Confirm'.

The 'Payment by Card' dialog box shows the total price of 240.0. It prompts the user to 'Kindly enter your pin. (4 digits)' with a text input field containing '0000'. At the bottom, there are two buttons: 'Cancel' and 'Confirm'.

3. Admin

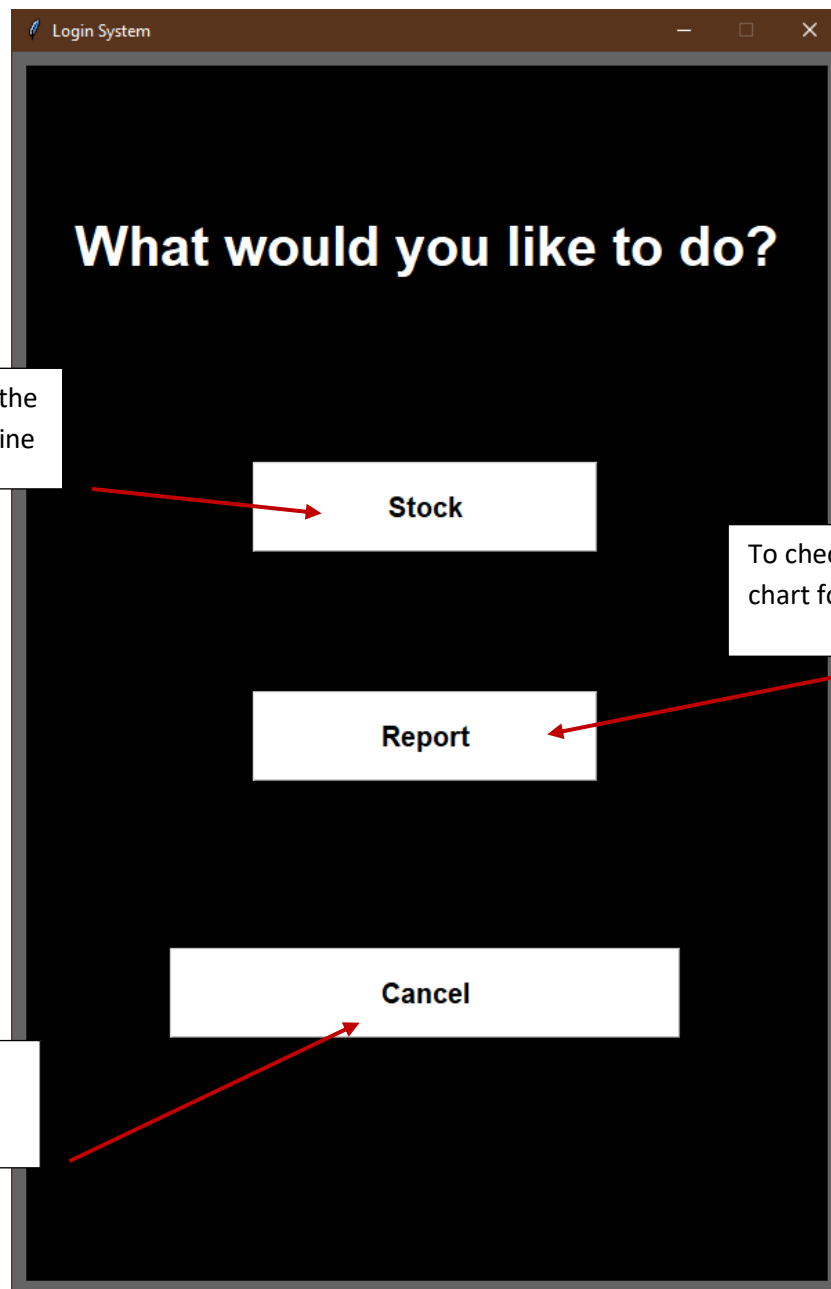
The image shows a screenshot of a web application window titled "Login System". The window has a dark background with a white login form in the center. The form contains two input fields: "Username" and "Password". The "Username" field is filled with "Admin" and the "Password" field is filled with "1234". Below the fields is a black "Login" button. Three red arrows point from external text boxes to the form elements: one to the "Username" field, one to the "Password" field, and one to the "Login" button. The external text boxes provide instructions and the values entered in the fields.

Entry box to enter the username.
USERNAME is Admin

Entry box to enter the password.
PASSWORD is 1234

Login button to continue

3.1. Window for admin to chose between stock and report



If the user wants to check the stock of the vending machine

Stock

To check the stock in pie chart format

Report

If the user wants to cancel and quit the application

Cancel

3.2. STOCK

The screenshot shows a window titled "Stock" with a dark header bar. Below the header, the word "STOCK" is displayed in large, bold, black letters. To the left of the main table, there are four input fields labeled "Product ID", "Product Name", "Product Price", and "Quantity". To the right of the table is a vertical stack of buttons: "Delete", "Remove All", "Update", "Select", "Reset", "Save / Export", and "Exit". A table with four columns (Product ID, Product Name, Product Price, Product Quantity) lists various products and their stock levels. Red arrows point from callout boxes to specific elements: "Delete" (to delete the selected row), "Remove All" (to remove all items), "Update" (to update an item), "Select" (to display information in the entry box), "Reset" (to reset the entry box), "Save / Export" (to update the product.csv file), "Exit" (to cancel and quit), and the table itself (labeled as the stock display).

STOCK

Product ID
Product Name
Product Price
Quantity

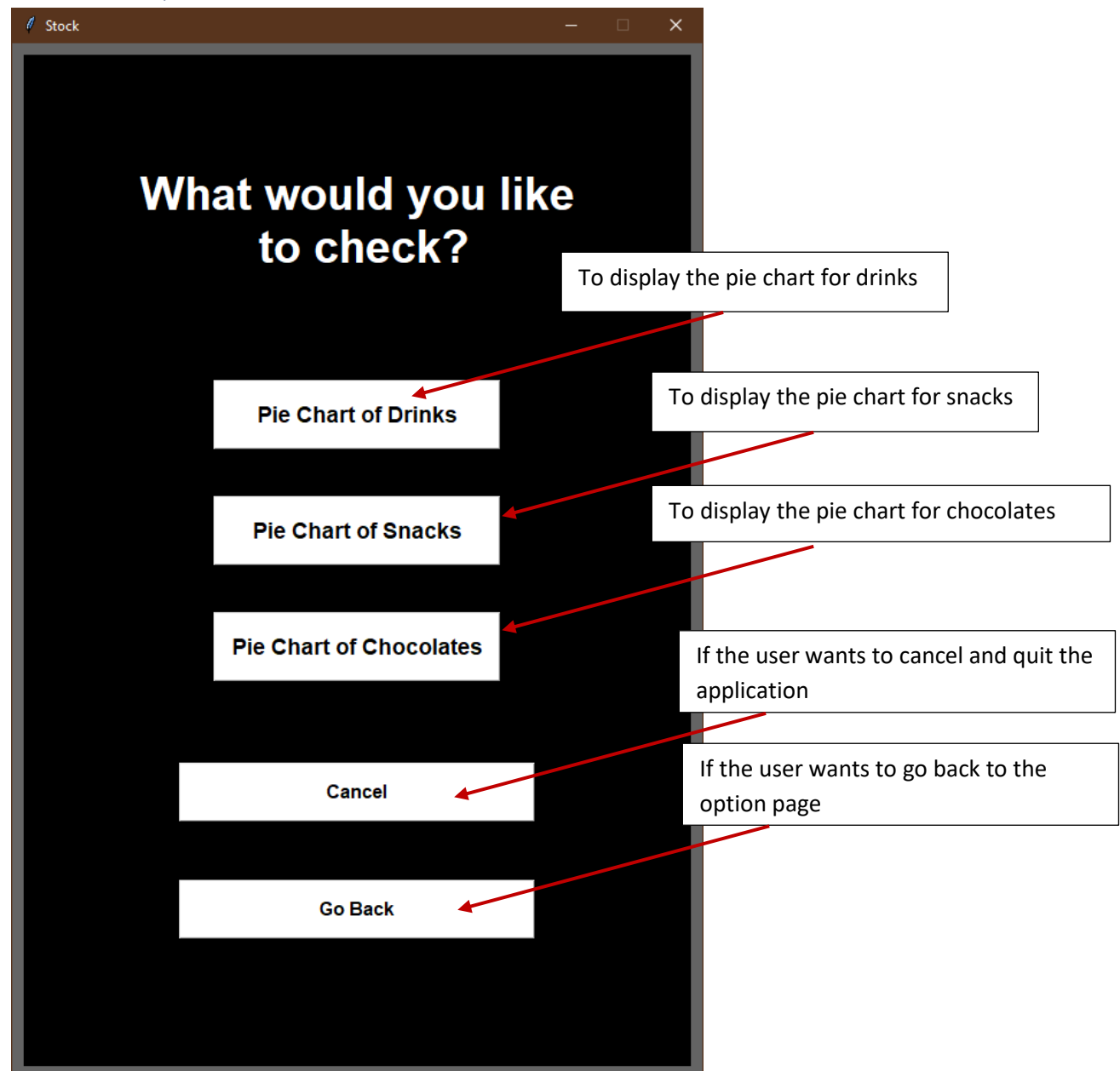
| Product ID | Product Name | Product Price | Product Quantity |
|------------|-----------------------------|---------------|------------------|
| C05 | Mars | 70 | 17 |
| C46 | DairyMilk | 80 | 20 |
| C40 | Twix | 55 | 14 |
| C45 | KitKat | 60 | 9 |
| C32 | Crunch | 60 | 6 |
| S21 | Doritos Sweet Chilli Pepper | 50 | 5 |
| S20 | Doritos Sweet Chilli | 50 | 9 |
| S30 | Doritos BBQ | 40 | 6 |
| S50 | Doritos Cheese | 40 | 15 |
| S03 | Doritos Paprika | 45 | 3 |
| D39 | Monster | 20 | 11 |
| D23 | Coke | | 8 |

Buttons: Delete, Remove All, Update, Select, Reset, Save / Export, Exit

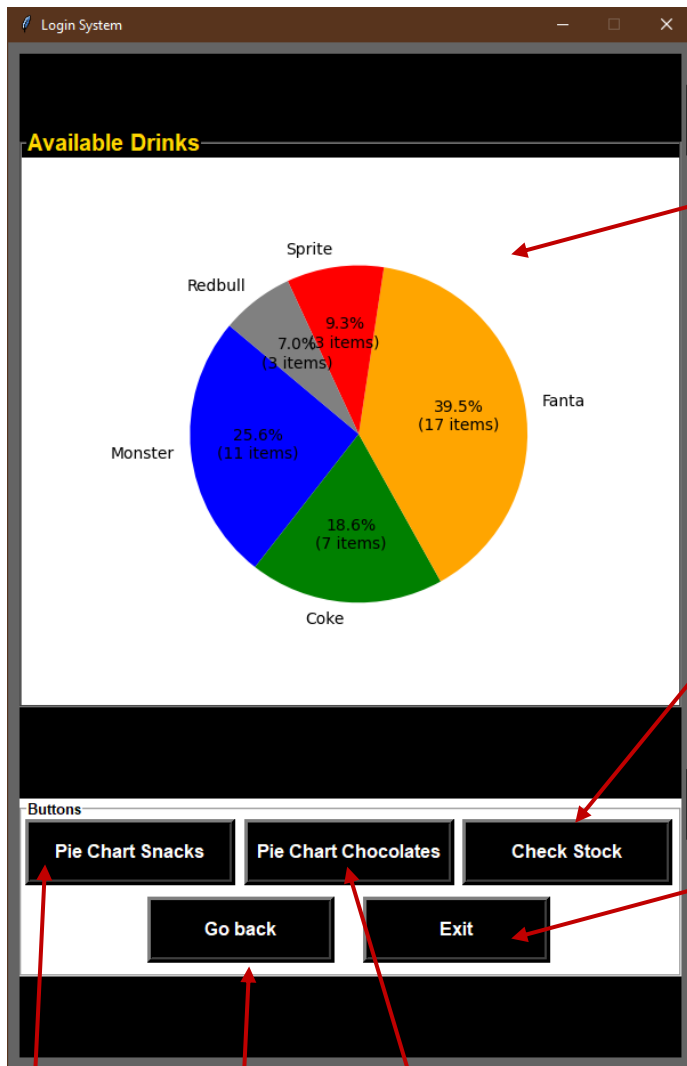
Callouts:

- To delete the selected row
- To remove all the items from the stock table
- To update an item after pressing the button select
- To display the information into the entry box
- To reset the entry box if needed
- To update the product.csv file
- If the user wants to cancel and quit the application
- Label to display the stock

3.3. Report



3.3.1. Pie chart of Drinks



Label to display the pie chart

To check the stock

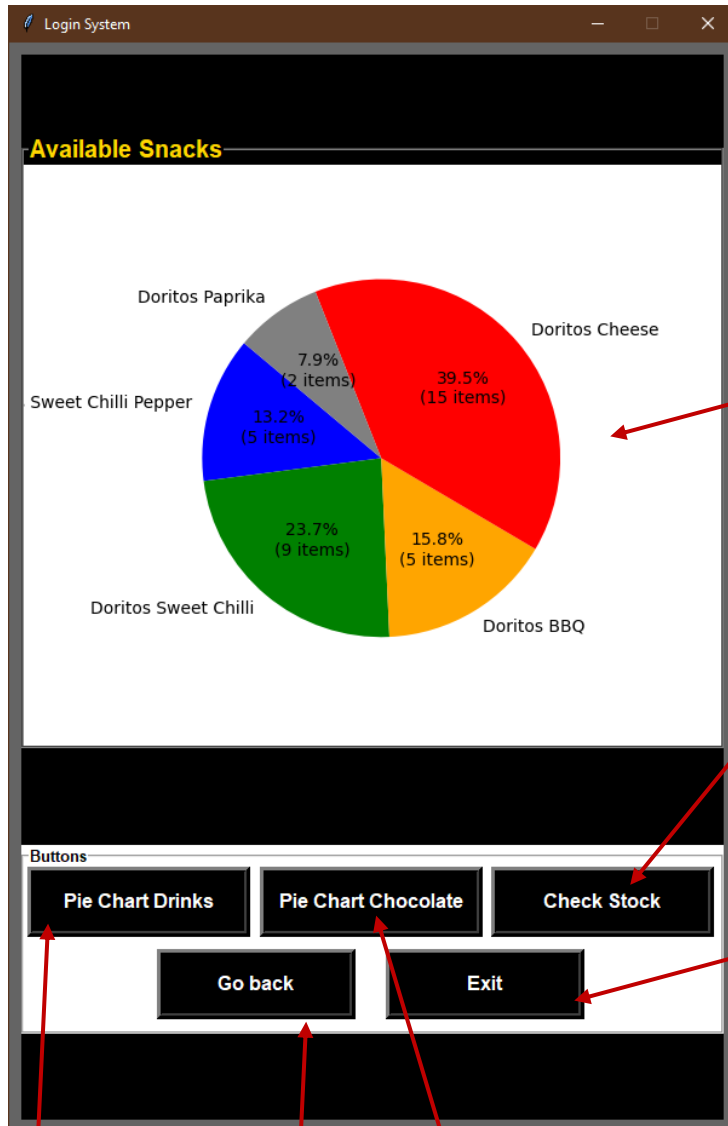
To quit the application

To check the pie chart of chocolates

To check the pie chart of snacks

To go back to the previous page

3.3.2. Pie chart of Snacks



Label to display the pie chart

To check the stock

To quit the application

To check the pie chart of chocolates

To check the pie chart of drinks

To go back to the previous page

3.3.3. Pie chart of Chocolates

