

**DEPARTMENT: COMPUTER SCIENCE AND ENGINEERING**

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| *Assignment* | **II** | *Academic Year/Semester* | **2024-25 /VI** |
| *Subject* | **CST 362 PROGRAMMING IN PYTHON** | *Branch* | **CSE B** |
| *Date of Announcement* | 21-03-2024 | *Date of Submission* | **28-03-2024** |
|  |  | *Max. Marks* | 15 |

**Case Study: Developing a GUI Shop Billing System in Python**

You are tasked with developing a Graphical User Interface (GUI) program for a shop's billing system using Python. The system should allow the shop attendant to input product details such as product number, cost, and quantity. Upon entering these details, the attendant should be able to add the product to a list displayed as a table in the GUI.

Additionally, the system should have a final submit button, which, upon clicking, calculates the final bill for the customer based on the items added to the list. The final bill should include the total cost of each product (quantity \* cost) and the overall sum of all products in the list.

Your task is to design and implement the Python program that fulfills these requirements using a suitable GUI library.

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Program

from breezypythongui import EasyFrame

class BillingSystem(EasyFrame):

    def \_\_init\_\_(self):

        EasyFrame.\_\_init\_\_(self, title="BILLING SYSTEM")

        self.setBackground("#00FFFF")

        self.addLabel(text="PRODUCT NUMBER", row=0, column=0)

        self.prodNumField = self.addIntegerField(value=0, row=0, column=1)

        self.addLabel(text="COST", row=1, column=0)

        self.costField = self.addFloatField(value=0.0, row=1, column=1)

        self.addLabel(text="QUANTITY", row=2, column=0)

        self.quantityField = self.addIntegerField(value=0, row=2, column=1)

        self.addButton(text="ADD PRODUCT", row=3, column=1, command=self.add\_product)

        self.addLabel(text="PRODUCT LIST", row=4, column=0, columnspan=2)

        self.productList = self.addTextArea("", row=5, column=0, rowspan=5, columnspan=2, width=50, height=10)

        self.addButton(text="SUBMIT", row=10, column=0, columnspan=2, command=self.calculate\_bill)

        self.products = []

    def add\_product(self):

        prod\_num = self.prodNumField.getNumber()

        cost = self.costField.getNumber()

        quantity = self.quantityField.getNumber()

        self.products.append((prod\_num, cost, quantity))

        self.update\_product\_list()

        self.prodNumField.setNumber(0)

        self.costField.setNumber(0.0)

        self.quantityField.setNumber(0)

    def update\_product\_list(self):

        product\_str = ""

        for product in self.products:

            product\_str += f"PRODUCT NUMBER= {product[0]:5d} | COST= {product[1]:5f} | QUANTITY= {product[2]:5d}\n"

        self.productList.setText(product\_str)

    def calculate\_bill(self):

        total\_cost = sum(cost \* quantity for \_, cost, quantity in self.products)

        self.messageBox(title="FINAL BILL", message=f"TOTAL BILL = ${total\_cost:.2f}")

def main():

    BillingSystem().mainloop()

if \_\_name\_\_ == "\_\_main\_\_":

    main()

Output

