**Non-Object-Oriented Implementation**

Study the Python program below. Copy-and-paste this code into a new file named RobotStore.py. You should run and test the program out before modifying it in the next section.

productNames = [ "Ultrasonic range finder"

, "Servo motor"

, "Servo controller"

, "Microcontroller Board"

, "Laser range finder"

, "Lithium polymer battery"

]

productPrices = [ 2.50, 14.99, 44.95, 34.95, 149.99, 8.99 ]

productQuantities = [ 4, 10, 5, 7, 2, 8 ]

def printStock():

print()

print("Available Products")

print("------------------")

for i in range(0,len(productNames)):

if productQuantities[i] > 0:

print(str(i)+")",productNames[i], "$", productPrices[i])

print()

def main():

cash = float(input("How much money do you have? $"))

while cash > 0:

printStock()

vals = input("Enter product ID and quantity you wish to buy: ").split(" ")

if vals[0] == "quit": break

prodId = int(vals[0])

count = int(vals[1])

if productQuantities[prodId] >= count:

if cash >= productPrices[prodId] \* count:

productQuantities[prodId] -= count

cash -= productPrices[prodId] \* count

print("You purchased", count, productNames[prodId]+".")

print("You have $", "{0:.2f}".format(cash), "remaining.")

else: print("Sorry, you cannot afford that product.")

else: print("Sorry, we are sold out of", productNames[prodId])

main()

**Migrating to an Object-Oriented Approach**

We are now going to change this program so that it uses classes, objects, and methods.

1. First, define a Product class that includes all the information about a single product.

a) You will need a constructor to initialize new instances. Objects of this class should have three

attributes: name, price, and quantity in-stock.

b) Add a methods to your class that takes an integer count and determines whether that many of

the product are in stock.

c) Add another method that takes a count and returns the total cost of that many of the product.

d) Finally, add a method that takes a count and removes that many of the product from the stock.

2. Next, replace the three product lists with a single list of Product instances.

3. Modify the rest of the code to correctly use the attributes and methods of the Product objects in the list.

4. Test your program as you go and fix any syntax or logic errors in order to get it working correctly.