

Screenshot of Solution to Question 1:

```

1 """
2
3 Torrens University
4 Trimester 2, 2024
5 MIS501 (1106) Principles of Programming
6 Assessment 1
7
8 Student Name: Ali Shahbaz Aman
9 Student ID:
10 Learning Facilitator: Francisca Adamopoulos
11 Subject Coordinator: Vipin Kumar Mehta
12
13 """
14
15 # QUESTION 1
16
17 # Inputting customer details
18 name = input("Please enter your full name: ")
19 number = input("Please enter your mobile number (in 10 digits): ")
20 address = input("Please enter your home address: ")
21 email_id = input("Please enter your email address: ")
22 dob = input("Please enter your date and month of birth: ")
23 birth_year = int(input("Please enter your year of birth: "))
24 age = 2024 - birth_year
25
26 if len(number) != 10:
27     print("Phone number needs to be 10 digits") #phone number stays in format
28 if age < 21:
29     print("Sorry, the minimum age to register is 21") #age check using birth year
30 else:
31     print("Welcome! Here are your details:", "\n", name, "\n", number, "\n", address, "\n")
32
33 # # QUESTION 2
34
35 # # Inputting vehicle measurements
36 # length = eval(input("Please enter the length of the vehicle in meters: "))
37 # width = eval(input("Please enter the width of the vehicle in meters: "))
38 # height = eval(input("Please enter the height of the vehicle in meters: "))
39
40 # weight = 100 * (length * width * height) # each cubic meter can hold 100kg, thus m
41 # if weight > 5000:
42
43

```

Console 6/A output:

```

Python 3.10.11 (v3.10.11:7d4cc5aa85, Apr 4 2023, 19:05:19) [Clang 13.0.0]
Type "copyright", "credits" or "license" for more information.

IPython 8.25.0 -- An enhanced Interactive Python.

Restarting kernel...

In [1]: runfile('/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py', wdir='/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1')
Please enter your full name: Ali Shahbaz
Please enter your mobile number (in 10 digits): 0412123456
Please enter your home address: 221B Baker Street
Please enter your email address: alio@email.com
Please enter your date and month of birth: 01 January
Please enter your year of birth: 1990
Welcome! Here are your details:
Ali Shahbaz
0412123456
221B Baker Street
alio@email.com
01 January

In [2]:

```

2. Screenshot of Solution to Question 2:

```

20 # address = input("Please enter your home address: ")
21 # email_id = input("Please enter your email address: ")
22 # dob = input("Please enter your date and month of birth: ")
23 # birth_year = int(input("Please enter your year of birth: "))
24 # age = 2024 - birth_year
25
26 # if len(number) != 10:
27 #     print("Phone number needs to be 10 digits") #phone number stays in format
28 # if age < 21:
29 #     print("Sorry, the minimum age to register is 21") #age check using birth year
30 else:
31     print("Welcome! Here are your details:", "\n", name, "\n", number, "\n", address, "\n")
32
33 # # QUESTION 2
34
35 # Inputting vehicle measurements
36 length = eval(input("Please enter the length of the vehicle in meters: "))
37 width = eval(input("Please enter the width of the vehicle in meters: "))
38 height = eval(input("Please enter the height of the vehicle in meters: "))
39
40 weight = 100 * (length * width * height) # each cubic meter can hold 100kg, thus mul
41
42 if weight > 5000:
43     print("The maximum weight capacity is 5000 kg") #maximum weight limit
44 else:
45     print("The maximum weight the vehicle can carry is", weight, "kg")
46
47 # # QUESTION 3
48
49 # #Inputting distance and speed
50 dist = eval(input("Please enter the distance of the route in km: "))
51 speed = eval(input("Please enter the average speed of the delivery vehicle in km/h
52
53 # time = dist/speed # formula for calculating estimated delivery time
54
55 # rest_periods = int(time // 15) #calculates rest sessions based on time
56 # total_time = time + (rest_periods * 8) #adds rest time of 8 hours per session
57 # print("The estimated delivery time is", total_time, "hours")
58
59
60 # # QUESTION 4 [COMPLETE]
61 # # Input weight (rounded up) and distance

```

Console 7/A output:

```

Python 3.10.11 (v3.10.11:7d4cc5aa85, Apr 4 2023, 19:05:19) [Clang 13.0.0]
Type "copyright", "credits" or "license" for more information.

IPython 8.25.0 -- An enhanced Interactive Python.

In [1]: runfile('/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py', wdir='/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1')
Please enter the length of the vehicle in meters: 2
Please enter the width of the vehicle in meters: 3
Please enter the height of the vehicle in meters: 4
The maximum weight the vehicle can carry is 2400 kg

In [2]:

```

3. Screenshot of Solution to Question 3:

The screenshot shows the Spyder IDE interface with the following details:

- File Menu:** Spyder, File, Edit, Search, Source, Run, Debug, Consoles, Projects, Tools, View, Help.
- Toolbar:** Standard file operations (New, Open, Save, Print, Find, Copy, Paste, etc.).
- Code Editor:** Displays the Python script `MIS500_Aman_A_Assessment_1.py.py`. The code includes logic for calculating delivery time and cost based on vehicle dimensions and speed.
- Variable Explorer:** Shows the current variable values in a table:

Name	Type	Size	Value
dist	int	1	6000
rest_periods	int	1	4
speed	int	1	100
time	float	1	60.0
total_time	float	1	92.0

- Console:** Displays the Python environment and the output of the script execution.

4. Screenshot of Solution to Question 4:

The screenshot shows the Spyder IDE interface with the following details:

- File Menu:** Spyder, File, Edit, Search, Source, Run, Debug, Consoles, Projects, Tools, View, Help.
- Toolbar:** Standard file operations (New, Open, Save, Print, Find, Copy, Paste, etc.).
- Code Editor:** Displays the Python script `MIS500_Aman_A_Assessment_1.py.py`. The code includes logic for calculating delivery time and cost based on vehicle dimensions, weight, and speed.
- Variable Explorer:** Shows the current variable values in a table:

Name	Type	Size	Value
------	------	------	-------

- Console:** Displays the Python environment and the output of the script execution.

5. Screenshot of Solution to Question 5:

```

...Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py
x untitled2.py* x temp.py x MIS500_Aman_A_Assessment_1.py.py
73 #     print("The total cost of the order is",total_cost, "dollars")
74
75 # QUESTION 5
76
77 #Get the names and distances of the three destinations
78 destination1_name = input("Enter the name of destination 1: ")
79 destination1_distance = float(input("Enter the distance to destination 1 from the warehouse: "))
80
81 destination2_name = input("Enter the name of destination 2: ")
82 destination2_distance = float(input("Enter the distance to destination 2 from the warehouse: "))
83
84 destination3_name = input("Enter the name of destination 3: ")
85 destination3_distance = float(input("Enter the distance to destination 3 from the warehouse: "))
86
87 # Determine order of the destinations based on distance
88 if destination1_distance >= destination2_distance and destination1_distance >= destination3_distance:
89     if destination2_distance >= destination3_distance:
90         route = "Warehouse ->" + destination1_name + " ->" + destination2_name + " ->" + destination3_name
91     else:
92         route = "Warehouse ->" + destination1_name + " ->" + destination3_name + " ->" + destination2_name
93 elif destination2_distance >= destination1_distance and destination2_distance >= destination3_distance:
94     if destination3_distance >= destination1_distance:
95         route = "Warehouse ->" + destination1_name + " ->" + destination2_name + " ->" + destination3_name
96     else:
97         route = "Warehouse ->" + destination2_name + " ->" + destination3_name + " ->" + destination1_name
98 else:
99     if destination1_distance >= destination2_distance:
100        route = "Warehouse ->" + destination3_name + " ->" + destination1_name + " ->" + destination2_name
101    else:
102        route = "Warehouse ->" + destination1_name + " ->" + destination3_name + " ->" + destination2_name
103
104 # Display the optimized route
105 print("Optimized Route:\n", route)
106
107 # QUESTION 6 [COMPLETE]
108
109 # weight_lbs = eval(input("Please enter the weight of the goods in pounds: "))
110 # weight_kg = weight_lbs * 0.453592
111
112 # if weight_kg < 10:
113 #     category = "Lightweight"
114

```

Variable Explorer:

Name	Type	Size	Value
destination1_distance	float	1	250.0
destination1_name	str	9	Melbourne
destination2_distance	float	1	550.0
destination2_name	str	6	Sydney
destination3_distance	float	1	250.0
destination3_name	str	7	Geelong
route	str	56	Warehouse -> Sydney -> Melbourne -> Geelong

IPython Console:

```

In [1]: runfile('/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py', wdir='/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1')
Enter the name of destination 1: Melbourne
Enter the distance to destination 1 from the warehouse (in km): 250
Enter the name of destination 2: Sydney
Enter the distance to destination 2 from the warehouse (in km): 550
Enter the name of destination 3: Geelong
Enter the distance to destination 3 from the warehouse (in km): 250
Optimized Route:
Warehouse -> Sydney -> Melbourne -> Geelong -> Warehouse

```

6. Screenshot of Solution to Question 6:

```

...Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py
x untitled2.py* x temp.py x MIS500_Aman_A_Assessment_1.py.py
100 #     route = "Warehouse ->" + destination3_name + " ->" + destination1_name +
101 # else:
102 #     route = "Warehouse ->" + destination3_name + " ->" + destination2_name + " ->" + destination1_name
103
104 # # Display the optimized route
105 # print("Optimized Route:\n", route)
106
107 # QUESTION 6
108
109 # Input weight in pounds
110 weight_lbs = eval(input("Please enter the weight of the goods in pounds: "))
111 weight_kg = weight_lbs * 0.453592 # Convert pounds to kg
112
113 # Categorize based on weight
114 if weight_kg < 10:
115     category = "Lightweight"
116     print("Goods Category:", category)
117 elif weight_kg >= 10 and weight_kg < 50:
118     category = "Mediumweight"
119     print("Goods Category:", category)
120 elif weight_kg >= 50 and weight_kg < 120:
121     category = "Heavyweight"
122     print("Goods Category:", category)
123 else:
124     # Message to divide boxes if over 120kg
125     print("Item is over 120kg and must be divided into small boxes")
126
127 # QUESTION 7 [COMPLETED]
128
129 # tracking_numbers = ["A00001D", "A00002D", "A00003D", "A00004D", "A00005D"]
130 # status = ["In transit", "Out for delivery", "Delivered", "In transit", "Out for delivery"]
131
132 # # Get the tracking number from the user
133 # tracking_number = input("Please enter the package's tracking number: ")
134
135
136 # # Check if the tracking number exists in the data
137 # if tracking_number in tracking_numbers:
138
139 #     # Get the index of the tracking number
140 #     index = tracking_numbers.index(tracking_number)
141

```

Variable Explorer:

Name	Type	Size	Value
category	str	11	Heavyweight
weight_kg	float	1	52.16308
weight_lbs	int	1	115

IPython Console:

```

In [2]: runfile('/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py', wdir='/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1')
Please enter the weight of the goods in pounds: 115
Goods Category: Heavyweight

```

7. Screenshot of Solution to Question 7:

The screenshot shows the Spyder IDE interface with the following details:

- File Menu:** Spyder, File, Edit, Search, Source, Run, Debug, Consoles, Projects, Tools, View, Help.
- Toolbar:** Standard file operations (New, Open, Save, Print, Find, Copy, Paste, etc.).
- Code Editor:** Displays three files: untitled2.py*, temp.py, and MIS500_Aman_A_Assessment_1.py.py. The MIS500 file contains Python code for determining a package's status based on its tracking number.
- Variable Explorer:** Shows variables and their values:

Name	Type	Size	Value
index	int	1	3
status	list	5	['In transit', 'Out for delivery', ...]
tracking_number	str	7	A00004D
tracking_numbers	list	5	['A00001D', 'A00002D', 'A00003D', 'A00004D', 'A00005D']
- Console:** Shows the output of running the script:


```
In [2]: runfile('/Users/alishahbazaman/Desktop/Torrents/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py', wdir='/Users/alishahbazaman/Desktop/Torrents/Trimester 2/Principles of Programming (MIS501)/Assessment 1')
Please enter the package's tracking number: A00004D
The current status of the package is: In transit
```
- Bottom Status Bar:** Spyder: 5.5.5 internal (Python 3.10.11), Completions: internal ✓ LSP: Python Line 138, Col 34 ASCII LF RW Mem 72%.

8. Screenshot of Solution to Question 8:

The screenshot shows the Spyder IDE interface with the following details:

- File Menu:** Spyder, File, Edit, Search, Source, Run, Debug, Consoles, Projects, Tools, View, Help.
- Toolbar:** Standard file operations (New, Open, Save, Print, Find, Copy, Paste, etc.).
- Code Editor:** Displays three files: untitled2.py*, temp.py, and MIS500_Aman_A_Assessment_1.py.py. The MIS500 file contains Python code for calculating average delivery times and finding the fastest and slowest delivery times for three destinations.
- Variable Explorer:** Shows variables and their values:

Name	Type	Size	Value
avg_del_time	float	1	11.33333333333334
dest_1	str	9	Melbourne
del_time1	float	1	6.0
del_time2	float	1	12.0
del_time3	float	1	16.0
delivery_times	list	3	[6.0, 12.0, 16.0]
- Console:** Shows the output of running the script:


```
In [1]: runfile('/Users/alishahbazaman/Desktop/Torrents/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py', wdir='/Users/alishahbazaman/Desktop/Torrents/Trimester 2/Principles of Programming (MIS501)/Assessment 1')
Enter the destination of delivery 1: Melbourne
Enter the delivery time for destination 1 (in hours): 6
Enter the destination of delivery 2: Canberra
Enter the delivery time for destination 2 (in hours): 12
Enter the destination of delivery 3: Sydney
Enter the delivery time for destination 3 (in hours): 16

Delivery Statistics:
Average delivery time: 11 hours
Fastest delivery: Melbourne with 6.0 hours
Slowest delivery: Sydney with 16.0 hours
```
- Bottom Status Bar:** Spyder: 5.5.5 internal (Python 3.10.11), Completions: internal ✓ LSP: Python Line 159, Col 18 ASCII LF RW Mem 73%.

9. Screenshot of Solution to Question 9:

```

...Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py
untitled2.py* temp.py MIS500_Aman_A_Assessment_1.py.py
189 # print("Slowest delivery:", dest_1, "with", del_time1, "hours")
190 # elif del_time2 >= del_time1 and del_time2 >= del_time3:
191 #     print("Slowest delivery:", dest_2, "with", del_time2, "hours")
192 # else:
193 #     print("Slowest delivery:", dest_3, "with", del_time3, "hours")
194
195 # QUESTION 9
196 # Get the names and license numbers of the drivers
197 driver1_name = input("Enter the name of driver 1: ")
198 driver1_license = input("Enter the license number of driver 1 (in the format XXX-XXX")
199 if len(driver1_license) != 7: # Ensure licence format
200     print("License number needs to be in the correct format")
201
202 driver2_name = input("Enter the name of driver 2: ")
203 driver2_license = input("Enter the license number of driver 2 (in the format XXX-XXX")
204 if len(driver2_license) != 7: # Ensure licence format
205     print("License number needs to be in the correct format")
206
207 driver3_name = input("Enter the name of driver 3: ")
208 driver3_license = input("Enter the license number of driver 3 (in the format XXX-XXX")
209 if len(driver3_license) != 7: # Ensure licence format
210     print("License number needs to be in the correct format")
211
212 # Get the number of deliveries available
213 num_deliveries = int(input("Enter the number of deliveries available: "))
214
215 # Assign deliveries to each driver
216 deliveries_per_driver = num_deliveries // 3 # Dividing deliveries between drivers
217 remaining_deliveries = num_deliveries % 3 # Remaining Deliveries for driver 3
218 # Assigning drivers their deliveries
219 driver1_deliveries = deliveries_per_driver
220 driver2_deliveries = deliveries_per_driver
221 driver3_deliveries = deliveries_per_driver + remaining_deliveries
222
223 # Display the delivery schedule
224 print("Delivery Schedule:")
225 print("License Number:", driver1_license, driver1_name, "has", driver1_deliveries, "deliveries")
226 print("License Number:", driver2_license, driver2_name, "has", driver2_deliveries, "deliveries")
227 print("License Number:", driver3_license, driver3_name, "has", driver3_deliveries, "deliveries")
228
229 # QUESTION 10 [COMPLETE]
230

```

Variable Explorer:

Name	Type	Size	Value
deliveries_per_driver	int	1	10
driver1_deliveries	int	1	10
driver1_license	str	7	A24-E04
driver1_name	str	3	Ali
driver2_deliveries	int	1	10
driver2_license	str	7	B12-3P0
driver3_deliveries	int	1	11

Console 7/A:

```

In [1]: runfile('/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py', wdir='/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1')
Enter the name of driver 1: Ali
Enter the license number of driver 1 (in the format XXX-XXX): A24-E04
Enter the name of driver 2: Han
Enter the license number of driver 2 (in the format XXX-XXX): B12-3P0
Enter the name of driver 3: Luke
Enter the license number of driver 3 (in the format XXX-XXX): CR2-D20
Enter the number of deliveries available: 31
Delivery Schedule:
License Number: A24-E04 Ali has 10 deliveries
License Number: B12-3P0 Han has 10 deliveries
License Number: CR2-D20 Luke has 11 deliveries

```

10. Screenshot of Solution to Question 10:

```

...Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py
untitled2.py* temp.py MIS500_Aman_A_Assessment_1.py.py untitled4.py
234 # Initialize the lists to store the account information
235 names = ["Ali Shahbaz", "Aragorn", "Legolas"]
236 emails = ["alishahbaz@email.com", "aragorn@email.com", "legolas@email.com"]
237 passwords = ["password1", "password2", "password3"]
238 newsletters = [True, False, True]
239
240 # Get user's email address and password
241 email = input("Enter your email address: ")
242 password = input("Enter your password: ")
243
244 # Validate the user's email address and password
245 if email in emails:
246     index = emails.index(email)
247     if passwords[index] == password:
248         # User is valid, allow them to update their account settings
249         print("Welcome, " + names[index])
250
251         # Update personal information
252         new_name = input("Enter your new name: ")
253         if new_name != "":
254             names[index] = new_name
255
256         new_email = input("Enter your new email address: ")
257         if new_email != "":
258             emails[index] = new_email
259
260         new_password = input("Enter your new password: ")
261         if new_password != "":
262             passwords[index] = new_password
263
264         # Update communication preferences
265         newsletter_choice = input("Do you want to subscribe to our newsletter? (y/n)")
266         if newsletter_choice.lower() == "y":
267             newsletters[index] = True
268         elif newsletter_choice.lower() == "n":
269             newsletters[index] = False
270
271         print("Account settings updated successfully!")
272     else:
273         print("Invalid password. Please try again.")
274 else:
275     print("Invalid email address. Please try again.")


```

Variable Explorer:

Name	Type	Size	Value
email	str	20	alishahbaz@email.com
emails	list	3	['gandalfgrey@email.com', 'aragorn@email.com', 'legolas@email.com']
index	int	1	0
names	list	3	['Gandalf Grey', 'Aragorn', 'Legolas']
new_email	str	21	gandalfgrey@email.com
new_name	str	12	Gandalf Grey
new_password	str	20	YouShallNotPass-word
newsletter_choice	str	1	n

Console 7/A:

```

In [1]: runfile('/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1/MIS500_Aman_A_Assessment_1.py.py', wdir='/Users/alishahbazaman/Desktop/Torrens/Trimester 2/Principles of Programming (MIS501)/Assessment 1')
Enter your email address: alishahbaz@email.com
Enter your password: password1
Welcome, Ali Shahbaz
Enter your new name: Gandalf Grey
Enter your new email address: gandalfgrey@email.com
Enter your new password: YouShallNotPass-word
Do you want to subscribe to our newsletter? (y/n): n
Account settings updated successfully!

```