



GalleryHub Milestone 4

Background

As you already know, Gallery Hub is a virtual art exhibition where visitors can buy tickets and attend various exhibitions by different artists. During the exhibition, visitors can explore the paintings and purchase them. All the paintings purchased will be saved in the user's private collection within their account.

For this milestone, you will help the artists paint their pieces before displaying them in Gallery Hub. And to do so you will use functions that each draws a specific painting in the gallery.

Gallery Hub has 3 exhibitions; in this milestone these exhibitions have names and themes. Also there is a specific number of VIP and Standard tickets in each exhibition, but for the same price set in MS1.

Exhibition 01: "Wild wonders"

Theme: Nature

Artist: Fati Flora

VIP tickets: 5 available for 500 dh each

Standard tickets: 15 available for 250 dh each

Fati Flora is a naturalist and has 3 painting types that she will display in this exhibition, for different prices:

painting_1_1 : Mountain costs 1035 dh (5 units available)

painting_1_2 : Christmas Tree costs 1500 dh (8 units available)

painting_1_3 : Flower costs 560 dh (6 units available)

Exhibition 02: "Delicious Dimensions"

Theme: Food

Artist: Picasso Pancake

VIP tickets: 10 available for 400 dh each

Standard tickets: 20 available for 200 dh each

Picasso Pancake is a foodie and has 2 paintings types that he will display in this exhibition, for different prices:

painting_2_1 : Tea Cup costs 307 dh (12 units available)

painting_2_2 : Pop Tart costs 520 dh (9 units available)

Exhibition 03: "Polygon Paradise"

Theme: Geometry

Artist: Angle Angelo

VIP tickets: 15 available for 300 dh each

Standard tickets: 25 available for 100 dh each

Angle Angelo is a math nerd and has 3 painting types that he will display in this exhibition, for different prices:

painting_3_1 : Rhombus costs 444 dh (4 units available)

painting_3_2 : Hallow Rectangle costs 567 dh (11units available)

painting_3_3 : Left Triangle 333 dh (3 units available)

Your Tasks

Using Python you will have to complete the same tasks as Milestone 3 (MS3) with additional features. To help you, we gathered all the information you need in this document:

- **Enhanced Login:** Similarly to MS3, if a visitor fails to provide valid credentials, you should prompt them again to re-enter their correct email and password, allowing only 3 failed attempts. User email and password are still stored in constant lists in the app. When the visitor uses the service, the email and password they type in are compared against stored credentials.

- **New:** In this milestone, we have 5 users with different emails and passwords that you specify.
- **Multiple Visitors:**
 - **New:** In this milestone, you should allow 5 visitors into GalleryHub.
- **Purchasing Tickets for Multiple Exhibitions:** The visitor can purchase multiple tickets for different exhibitions. Compute the total the user has spent in tickets and display it, then update the availability of tickets.
 - **New:** You have the new prices and availabilities of tickets in the background section

We set a specific number of VIP and Standard tickets that should be updated separately. Display a total ticket purchase for each exhibition and a grand total for all ticket purchases at the end.
- **Attending Multiple Exhibitions:** Visitors are allowed to attend multiple exhibitions one after another in a single login session, but no exhibition is visited twice! They can still opt out of attending any exhibition even if they have purchased tickets (they lose the tickets). In a comment specify which of the options from MS3 you implemented.
- **Displaying Paintings:** Visitors should contemplate the paintings of the exhibition they decided to visit before deciding to purchase them, right?
 - **New:** Use functions to draw all the paintings you will find in the Paintings file, read the Submission Guidelines section for more details.
- **Purchasing Multiple Paintings:** Visitors can purchase multiple paintings in a given exhibition. Compute the total the user has spent in paintings and display it, then update the availability of paintings. Display a total painting purchase

for each exhibition and a grand total for all painting purchases at the end.

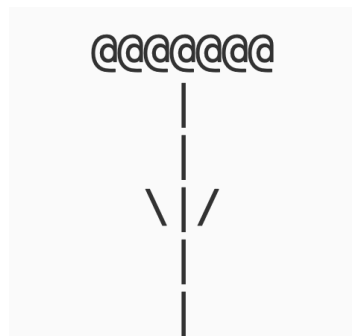
- **New:** we no longer have 5 paintings available in each exhibition. Instead each exhibition has a specific number of paintings, each with a specific price and number available (see Background section).

Paintings

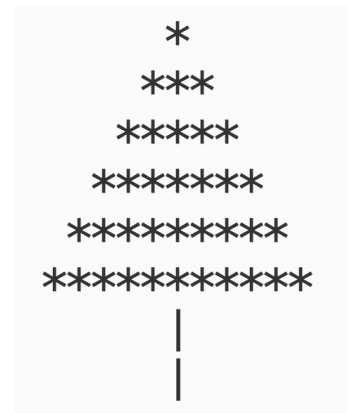
Exhibition 01: "Wild wonders"



Mountain By Fati Flora



Flower By Fati Flora

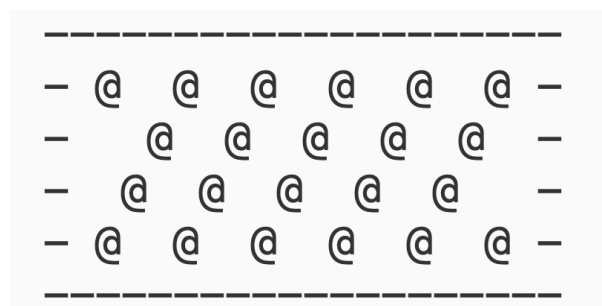


Christmas Tree By
Fati Flora

Exhibition 02: "Delicious Dimensions"



Tea Cup by Picasso Pancake



Pop Tart by Picasso Pancake

Exhibition 03: "Polygon Paradise"

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Hallow Rectangle by
Angle Angelo

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Left Triangle by
Angle Angelo

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Rhombus by Angle Angelo

Submission Guidelines

REMINDER: This is individual work !!!

- Displaying Paintings:
 - Each painting should have a dedicated function which may call other functions to draw its parts.
 - Name the function you implement the same as the painting name, and the sub-functions with additional details.
 - For example: to draw the flower in Exhibition 01, implement a function named `flower()` which will call the following functions: `flower_petals()`, `flower_leaves()`, `flower_stem()`. This is just an example, you can decompose this figure differently.
 - It is up to you to decide on the parameters to pass and results to return.
- What to submit ?

- A zip file with a design document and a python folder
 - The design document: Specify the hierarchy of your program using a structure chart of at least 3 levels below the root (the full task) specifying the modules, functions, and sub-functions used.
 - The python folder: should contain at least two files, [figures.py](#) containing all the figures to draw, and a [main.py](#) where the rest of the program is located. You may add additional files.

Grading Rubric

	Main task	Total	Subtotal	Sub-tasks
EFFECTIVENESS	Enhanced Login	1	1	The visitor enters a correct email and password in no more than three attempts
	Multiple visitors	1	0.5	You allow multiple visitors to login
			0.5	You end the program when suitable
	Purchasing Tickets for Multiple Exhibitions	1	0.5	The visitor chooses a valid number of tickets to purchase
			0.25	The total is computed and displayed correctly
			0.25	The tickets number is updated
	Attending Multiple Exhibitions	1.5	0.5	Visitors can attend more than one exhibition
			0.5	Visitors can leave without attending an exhibition
			0.5	Visitors cannot attend the same exhibition twice
	Displaying Paintings	6	4	One function per painting
			2	Identified paintings subpieces reasonably
	Purchasing Multiple Paintings	1.25	0.5	The visitor chooses a valid number of paintings to purchase
USER INTERACTION			0.25	The total is computed and displayed correctly
			0.25	The paintings number is updated
			0.25	Cannot purchase paintings without visiting exhibition
	Greetings at entry	0.25		
	Clear and informative prompts	0.5		
	Checks for invalid input	1	0.1	Valid exhibition type
			0.2	Valid number of tickets (VIP/Standard)
ELEGANCE			0.7	Valid number of paintings
	Clear and well formatted outputs	0.25		
	Greetings at exit	0.25		
	Constants and important variables at top	0.5		
DESIGN	Good names for constants & variables	0.5		
	No unnecessary repetition of code (factoring)	0.5		
	Functions should have at least 1 line of space between them	0.5		
	Structure Chart	3		A structure chart of at least 3 levels below the root
	Comments about information to pass via parameters/return or globally	0.5		
	Comment about the design option you opted for	0.5		
		20		