ITP4116Q Blockchain Database
Final Test

Final Skills Test

Objective:

The National Museum of Art has digitized its historical paintings to preserve them. Each digital painting is tokenized as an NFT on BigchainDB.

Instructions:

1. The total mark of this test is 90 marks. You are NOT allowed to communicate with each other or use any generative AI tools to help you design the code.
2. You have 15 minutes of reading time before the start of the test. During the reading time, no coding is allowed.
3. You have 5 minutes to ask questions after you have finished the reading time.
4. You have 2 hours to complete the tasks, including submit to Moodle.
5. **Please READ CAREFULLY and FOLLOW the INSTRUCTIONS or no mark will be given!!**

Users

Username	Name	e-mail
alice_johnson	Alice JOHNSON	alice.johnson@lonemail.com
lukeseven123	Luke WONG	luke123@imail.com
heyman666	Hayson MAN	man666@dudumail.com
mingchen222	Ming LIN	popming@movaction.hk
coco743	Coco GO	gogogogogo@coconut.com

Sample Assets

Asset Name	Description	Creator	Type	filesize	Resolution
Mona Lisa	A portrait by Leonardo da Vinci	mingchen222	JPG	4.5Mb	1920x1080
Starry Night	A painting by Vincent van Gogh.	heyman666	PNG	5.1Mb	2048x1536
Artistic-realistic nature	F32, Toronto. 20k photos of nature. 100% art, realistic, vertical, large, untouched, fully credited, carefully selected and heartly loved.	alice_johnson	RAW	50.2Mb	2048x1536
Lizzy Stewart	City Drawing	coco743	RAW	50.2Mb	2048x1536
Sheep Paintings	Folk art. Love this , some friends had a quilt made for with this as part of it :)	mingchen222	JPG	5.9Mb	1920x1080

Part 0 Create a new project (2 marks)

1. Create a new project folder with your student ID [2 marks]

Part 1 Schema Design (20 marks)

1. Create a new file, named **art.schema** in the root of the project folder. [2 marks]
2. The asset scheme and metadata are designed based on the sample data provided. Write your answers in the file you just created. [10 marks]
3. Justification your answer in part 2 (such as data type) [8 marks]

Part 2 Create a code to generate user profile (14 marks)

1. create a new source code, named **users.ts**, and generate the users with the provided data and the schema you have designed in part 1. [10 marks]
2. The program should generate the key of each user. [4 marks]

Part 3 Create a code for the art design (24 marks)

1. create a new source code, named **art.ts**, and generate the art work with the provided data and the schema you have designed in part 1. [10 marks]
2. The program should generate the key of each user. [4 marks]
3. Create the art work NFT based on the provided data and store in BigChainDB. [10 marks]

Part 4 Transfer Ownership (20 marks)

1. create a new source code, named **transfer.ts**, to help to transfer the ownership from one to the other. [10 marks]
2. In this case, you must implement the query NFT by using a source code queryart**.ts**. [10 marks]

Part 5 Wrap up (5 marks)

1. You are required to test your code by calling all the functions implemented in part 2, 3 and 4. [5 marks]

Part 6 Submission (5 marks)

You are required to zip your work and name the file with your student ID. [3 marks]

Submit the file to Moodle on or before the deadline. [2 marks]