2023 Summer Ruby on Rails Internship Test

Instructions:
1. Please create a Google Drive folder and name it with your full name, followed by "WD Web Internship Test" (example: "Diana Jurca WD Web Internship Test").
2. Create a subfolder for each of the following problems, in which you'll add your solutions.
3. Set the access rights for your main folder (created at step 1) to "available to anyone with the link"
4. Copy the link to your main folder and enter it in this Google Form:
https://forms.gle/PDJ7TbexYz4TZtPz8

Deadline for submission: 1st May 2023

---

1. First non-repeating character - Data structures & Algorithms

Problem A)

Write a function that takes a string as input and returns the first non-repeating character in the string. If all characters repeat, return None/null/nil/undefined (depending on the language of choice).

Example A)

`"alabalaportocala"` - `"b"`
`"aaaaaa"` - `null`

Problem B)

Write a function that takes as parameter a list of strings. The output of the function should 1 string, made of the first non-repeating character from each string in the list.

Example B)

`["alabalaportocala", "all", "ana"] - "ban"`

`["ananas", "stea", "solar"] - "sss"`

Problem C)

Write a function that takes as parameter a list of strings. The output of the function should 1 hash, with keys each first non-repeating character from the list & the value → the number it appears.

Example C)

`["alabalaportocala", "all", "ana", "nelu"] - "{ b: 1, a: 1, n: 2 }"`

`["alabalaportocala", "all", "aaa"] - "{ b: 1, a: 1 }"`

---

2. Students tuition - OOP

Create a class hierarchy for a university's student enrolment system. All students have a name and a student ID, but different types of students have different methods for calculating their tuition. Specifically, there are two types of students: in-state students and out-of-state students. In-state students pay a flat rate per semester, while out-of-state students pay the flat rate plus a per-credit fee.

---

3. E-commerce - database design

You're working on a project to build an e-commerce website. Design a database schema that will support product inventory, orders, and customer data.

Each product has a name, description, price, and quantity in stock. Customers can create an account with a username, email, and password. Customers can place orders for one or more products, and each order has a unique order ID, customer ID, product ID, quantity, and total price. Take into consideration that we want to store in the order the price of the product at the time of the order (price of the products might change).

When creating an order, the user should be able to set the (one) billing & the (one) shipping address (addresses should contain data about city, street & postal code). A user can have multiple billing & multiple shipping addresses to select from when creating the order.

The end result should be a database diagram, you can use any tool you want. If you don't have any specific preferences, you can use this one: A Free Database Designer for Developers and Analysts. Attach the diagram as a picture/image.

Good luck!