Developer challenge

**Theorical**.

1) Which of the following statements about 'Task' are true?

A - Task can return a result. There is no direct mechanism to return the result from thread.

B - We can't chain tasks together to execute one after the other.

C - Child task exception can't propagate to parent task.

D - Task support cancellation through the use of cancellation tokens.

2) Which of the following describes the Facade pattern correctly?

A - This pattern allows a user to add new functionality to an existing object without altering its structure.

B - This pattern is used where we need to treat a group of objects in similar way as a single object.

C - This pattern hides the complexities of the system and provides an interface to the client using which the client can access the system.

D - This pattern is primarily used to reduce the number of objects created and to decrease memory footprint and increase performance.

3) Which of the following is correct about Factory design pattern.

A - This type of design pattern comes under creational pattern.

B - Factory pattern creates object without exposing the creation logic to the client.

C - Factory pattern refers to newly created object using a common interface.

4) Which of the following is correct list of classifications of design patterns.

A - Creational, Structural and Behavioral patterns.

B - Executional, Structural and Behavioral patterns.

C - Creational, Executional and Behavioral patterns.

D - None of the above.

5) Which of the following pattern works as a bridge between two incompatible interfaces?

A - Builder Pattern

B - Adapter Pattern

C - Prototype Pattern

D - Filter Pattern

6) What are the difference between a static class and a singleton class?

A - A static class can not be a top level class and can not implement interfaces where a singleton class can.

B - All members of a static class are static but for a Singleton class it is not a requirement.

C - A static class get initialized when it is loaded so it can not be lazily loaded where a singleton class can be lazily loaded.

D - A static class object is stored in stack whereas singleton class object is stored in heap memory space.

7) Which if the following ways of overloading a method in C# are correct?

A - Different number of parameters

B - Different parameter data types

C - Different return type

D - Different order of parameters

8) Which of the following statements about enums are true?

A - Trying to cast int to invalid enum value will result in an exception being thrown

B - Enum variable default value is 0

C - String can be casted to proper enum variable using Enum.Parse

9) Which of the following statements about 'Extension Methods' are true?

A - The difference between a regular static method and an extension method is the special 'this' keyword for the first argument.

B - Extension method cannot be declared on a class or struct.

C - It can't be declared on an interface.

D - Extension methods need to be declared in a nongeneric, non-nested, static class.

10) Which of the following statements are true?

A - Func is a delegate (pointer) to a method, that takes zero, one or more input parameters, but does not return anything.

B - Action is a delegate (pointer) to a method, that takes zero, one or more input parameters, and returns a value (or reference).

C - Predicate is a special kind of Func often used for comparisons.

D - All of the above.

**Practical**

# Context

A company rents bikes under following options:

1. Rental by hour, charging $5 per hour

2. Rental by day, charging $20 a day

3. Rental by week, changing $60 a week

4. Family Rental, is a promotion that can include from 3 to 5 Rentals (of any type) with a discount

of 30% of the total price

# Assigment:

1. Implement an API method that return the value of the rent depending the options.

2. Add automated

3. Apply all the recommended practices you would use in a real project

4. Add an Angular front end that implement this API.

# Deliverables:

The link to your repository