You are now working on a game called Car Driving Online. It's a car driving simulation game, where player can freely drive his car around, collecting stuffs, making stunts, and joining online with other friends (using Photon Unity Networking - PUN)

### **Physics**

1. You are about to implement the buoyancy effect for a special car type, which can move freely above the water level. How can you solve that problem using PhysicsX?
2. Jawaban:

Membuat script water.cs yang didalamnya terdapat OnTriggeStay ketika mobil memasuki collider air maka AddForce dengan type acceleration ke atas rigidbody mobil.Semakin dalam mobil akan semakin memperbesar addForce

### **Architecture Design questions**

1. You are about to implement the collection system, which handles 3 things : allows the designer to manually place tokens around the map, allows the player to collect those tokens by colliding with them, and allows the player to unlock new character skins / vehicle skins / etc when collecting enough tokens. How do you design that system, in such a way that least-dependant on other gameplay elements, because our current codebase is quite chaotic.
2. Jawaban:
3. 1.Data

Membuat class PlayerData.cs yang didalamnya terdapat property : token,List<string> UnlockedSkin, List< string > UnlockedVehicle dan script ini Serializable sehingga bisa di parsing ke JSON untuk diSave. Dan membuat Singleton Player yang didalamnya ada data PlayerData playerData sehingga data player bisa diakses dari mana saja.

Membuat Database.cs dengan property List<Skin> skins untuk list skin.

Untuk unlock skin, dengan membuat script Skin.cs yang didalamnya terdapat property string ID maka setiap kali pemain unlock skin maka id akan ditambahka di Player.Instance.playerData.UnlockedSkin.

2.Object

Membuat prefab Token dengan script Token.cs yang didalamnya terdapat OnTriggerEnter ketika player menyentuh token maka Player.Instance.playerData.token akan ditambah.

### **Networking**

1. The game uses PUN, each player updates his location to others. There is a reported exploit that allows cheaters to cheat by using Cheat Engine to speed up the game. How is that possible ? And what can you do to minimize impacts from that exploit?
2. You are about to design the synchronization mechanism for the game. Each player controls a vehicle, which needs to sync properties below. How do you synchronize those properties?
   1. Position of the vehicle
   2. Rotation of the vehicle.
   3. Wiper State: 3 state - on , low, high
   4. Rear light State: 3 state: off , on , blink
   5. Sidelight State: 4 state: off, on , blink-slow, blink-fast
   6. Horn: player can press and release the horn button, to start and end the horn sound ( he sound continuously plays when player holds the button)
3. Jawaban:

Untuk PUN saya tidak pernah memakainya karena di project yang saya kerjakan networkingnya tidak menggunakan third party dan server dibuat sendiri dengan format JSON melalui protocol UDP.

* + 1. Untuk posisi tidak dikirim setiap frame hanya 10 pengiriman per detik agar tidak terlihat patah2 pergerakanya setiap pindah posisi menggunakan lerp
    2. Untuk rotasi sama dengan posisi
    3. Wiper state bisa menggunakan int untuk memperpendek string (1=on,2=low,3=high)
    4. Rear light State: sama dengan wiper state(1=off,2=on,3=blink)
    5. Sidelight State : sama dengan wiper state(1=off,2=on,3=blink-slow,blink-fast)
    6. Horn(1=startHorn,2=stopHorn)