HRD System Analyst Test Assignment

Description

Company X develops several different applications of the same type (e.g., slot games). In general, the same person may play different games.

The company infrastructure implements an Event Driven Architecture. For simplicity, we assume that each application communicates with backend services that handle:

- Authorization
- Spins
- Purchase

Each service processes data requests and sends typed, structured events as JSON messages to the internal data bus. These messages are then aggregated by the Data Platform for further collection, aggregation, processing, and data analytics.

The marketing and monetization team wants access to this data to create aggregated reports such as:

- The average purchase per player across all applications;
- Which game a player spends the most time on;
- How the average spin changes over time (to track inflation trends);
- User-profile with PII data across the all games.;

The high-level architecture:
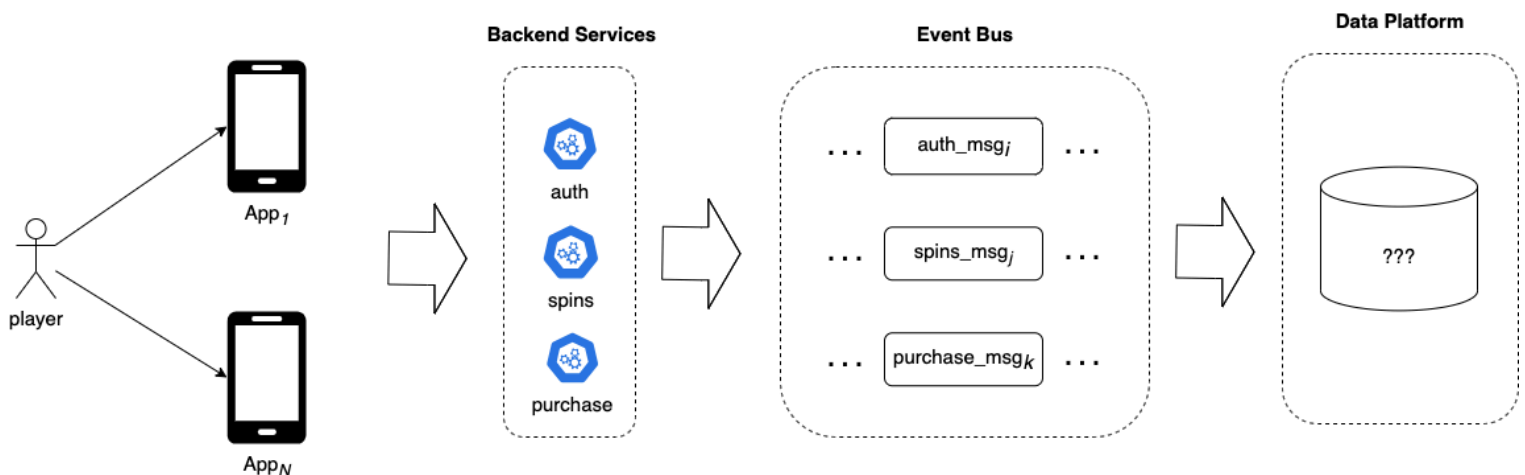
Task

As part of this test assignment, you need to develop and describe the data model structure and storage format for the specified data based on the Data Vault 2.0 methodology.

Questions to address:

- What technology/technologies will be used to implement this storage solution?
- Describe the table structure, attribute composition, and data types. The format of the description is open-ended; use whichever is most convenient or familiar for you.
- What additional components need to be developed to support your solution?

The test task does not require the use of any specific or unique development/testing tools.

The result of the test task should be a document.pdf stored on your GitHub repository.

Here are some message examples:

Message	Example 1	Example 2

auth_msg	{
	  "msg_id": 124,
	  "publish_ts":
	"2024-10-12T14:00:00",
	  "type": "auth_event",
	  "payload": {
	    "uid": 453135,
	    "email": "SomeEmail@test.com",
	    "phone": null,
	    "app": "app_3"}
	}
		{
		  "msg_id": 125,
		  "publish_ts": "2024-10-12T15:00:00",
		  "type": "auth_event",
		  "payload": {
		    "uid": "some_uid_3",
		    "email": null,
		    "phone": +19023456789,
		    "app": "app_5"}
		}

spins_msg	{
	  "msg_id": 1275,
	  "publish_ts":
	"2024-10-12T14:02:00",
	  "type": "spin_event",
	  "payload": {
	    "uid": 125331,
	    "spin": 1400,
	    "app": "app_3"}
	}
		{
		  "msg_id": 1551,
		  "publish_ts": "2024-10-12T15:08:00",
		  "type": "spin_event",
		  "payload": {
		    "uid": "some_uid_3",
		    "spin": 900,
		    "app": "app_5"}
		}

purchase_msg	{
	  "msg_id": 2112,
	  "publish_ts":
	"2024-10-12T17:09:00",
	  "type": "purchase_event",
	  "payload": {
	    "uid": 124442,
	    "amount": 1499,
	    "app": "app_3"}
	}
		{
		  "msg_id": 2117,
		  "publish_ts": "2024-10-12T17:19:00",
		  "type": "purchase_event",
		  "payload": {
		    "uid": "some_uid_3",
		    "amount": 1799,
		    "app": "app_5"}
		}

(Note: BI reports and ETL development are not expected as part of this test assignment; this information is provided to help you understand the preferred data structure and storage format.)