

DIT635 - Scenario Exercise

You have been asked to develop a new automated parking system at the GOT airport.

In this new system, a user can simply insert their credit or debit card into the card reader at the ramp entrance. This will record the time they entered airport parking. They then can use the same credit or debit card to pay at an exit lane. The system should be fully automated; there is no waiting in line for a cashier. The system should also support ticketed parking: where the user receives a ticket and pays either by credit card or cash on exiting.

The system needs to interact with a number of entities and systems, including:

- Customers parking in the ramp
- Airport police and emergency responders
- Ramp managers
- External systems for validating credit card details and submitting payments
- The airport's accounting system
- External physical gate systems with basic controllers (raise / lower)
- External physical systems for signage
- An existing personnel system for staffing exit kiosks

The system will be deployed within the physical architecture of the airport parking garage, incorporating:

- Entrance Kiosks
 - Card dispensers
 - Credit card reader for e-park
 - Card reader for contract parking
- Parking ramp levels
 - Signage {FULL / not full}
 - Entry gates
- Exit Kiosks
 - Signage: {OPEN / ePark ONLY / CLOSED}
 - Staffed Kiosks
 - Automated Kiosks
- Security Cameras
- Hardware for Parking System
 - Dual Server w/Failover (can switch in event of failure)
 - Clustered DB
 - Storage Area Network

You will describe scenarios using the following template:

- Overview
 - Brief description of what the scenario illustrates.
- System/Environment State
 - Aspects of the state that affect quality (i.e., information stored in the system)
 - Significant observations about the environment that the system is running in.
- External Stimulus
 - Actions or environmental factors that initiate the scenario. (i.e., infrastructure

- changes or failures, security attacks, etc.)
- Name both the actor who initiated the scenario and the action.
- Required System Response
 - How should the system respond (from a quantifiable point of view)? (i.e., how should it handle a defined increase in requests?)
 - Name both the **response** (how the system should respond) and define a **response measure** (how success is defined and measured, along with a threshold that must be defined for success).

1. Create a reliability scenario using the above template assessing reliability (using any of the response measures defined in Lecture 2, EXCEPT for availability).
2. Create an availability scenario (if you assessed a scenario in #1 using availability, create another scenario here)
3. Create a performance scenario.
4. Create a scalability scenario.
5. Create a security scenario.