

Penny Software Arabia for Information Technology

Technical Assessment

Position: Backend Engineer

Drone Delivery Management Backend – Technical Assessment

Create a Drone delivery management backend in any programming language.

The API should be authenticated via a JWT, which is handed out by an endpoint that takes a name (for security purposes, pretend that this API will be behind an allow list) and a type of user (admin, enduser, or drone). All other endpoints will use the above JWT for validation. The JWT should be a simple self-signed token and held as a bearer.

The service for the API can be in any language.

The transport for the API can be REST, gRPC, Connect, NATS service or Thrift (multiple is also fine).

Acceptance Criteria (ACs)

Drones should be able to:

- Reserve a job.
- Grab an order from a location (origin or broken drone).
- Mark an order they have gotten as delivered or failed.
- Mark themselves as broken (and in need of an order handoff).
- Update their location (use latitude/longitude), and get a status update as a heartbeat.
- Get details on the order they are currently assigned.

Endusers should be able to:

- Submit orders for jobs, with an origin and destination.
- Withdraw orders that have not yet been picked up.
- Get details on orders they have submitted, including its current progress, location and ETA.

Admins should be able to:

- Get multiple orders in bulk, even if they did not submit them.
- Change the origin or destination for an order.
- Get a list of drones.
- Mark drones as broken or fixed.

Additional Rules

Any time a drone is broken it will stop and put up a job for its goods to be picked up by a different drone (even if it gets marked as fixed).

Submission Instructions

- Please submit the code as a GitHub, GitLab, or other code hosting site link.
- Write some tests for the code.
- Polish is a big part of the evaluation.



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