Final - Sequence Diagram (Raw Upload -> ADF -> Processed/latest -> Logic App Notify -> Visualize)

Participants: Student | Blob Storage (raw container) | Azure Data Factory | Blob Storage (processed/latest + by-timestamp) | Logic App (Blob Trigger on processed/latest) | Teams Channel | React Frontend | AWS Cognito | FastAPI Backend

Ingestion

- Student -> Blob Storage (raw container): Upload CSV file
- Blob Storage (raw container) -> Azure Data Factory: Trigger pipeline (new raw blob)
- Azure Data Factory -> Azure Data Factory: Transform CSV -> JSON / Group by device_id / Create latest + by-timestamp
- Azure Data Factory -> Blob Storage (processed/latest + by-timestamp): Write processed/latest/<device>.json (overwrite) / Write processed/by-timestamp/<ts>/...json

Notification

- Blob Storage (processed/latest + by-timestamp) -> Logic App (Blob Trigger on processed/latest): Trigger: blob added/modified (processed/latest)
- Logic App (Blob Trigger on processed/latest) -> Blob Storage (processed/latest + by-timestamp): Get blob content (V2)
- Logic App -> Logic App: Parse JSON
- Logic App (Blob Trigger on processed/latest) -> Teams Channel: Post message in channel (success/fail + details)

Visualization

- Student -> React Frontend: Open dashboard
- React Frontend -> AWS Cognito: Sign in
- AWS Cognito -> React Frontend: idToken (JWT)
- React Frontend -> FastAPI Backend: GET /api/latest|trend|device-counts / Authorization: Bearer JWT
- FastAPI Backend -> AWS Cognito: Verify JWT (JWKS)
- FastAPI Backend -> Blob Storage (processed/latest + by-timestamp): Read processed/latest/<device>.json (filter by role/device claim)
- Blob Storage (processed/latest + by-timestamp) --> FastAPI Backend: JSON payload
- FastAPI Backend --> React Frontend: Data for table + charts
- React Frontend --> Student: Render table + charts