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## FYP:LUNG CANCER DETECTION:

Here's a clear example of **3 key processes** in **Business Process Management Notation (BPMN)** for a **Lung Cancer Detection App** — showing how the app manages patient flow, diagnosis, and reporting:

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### 1. Patient Registration & Data Collection Process

**Purpose:** To collect and store patient details and medical history.

**Main BPMN steps:**

- **Start Event:** Patient opens the app.
  - **Task:** Fill registration form (personal + medical info).
  - **Task:** Upload chest scan/X-ray or CT image.
  - **Gateway (Decision):** Check if all required data is provided.
    - **Yes** → Proceed to analysis.
    - **No** → Prompt user to complete missing info.
  - **End Event:** Patient data saved and ready for processing.
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### 2. Image Analysis & Diagnosis Process

**Purpose:** To analyze uploaded images using AI/ML to detect signs of lung cancer.

**Main BPMN steps:**

- **Start Event:** New image uploaded.
  - **Task:** Preprocess image (resize, enhance, normalize).
  - **Task:** Run AI model for cancer detection.
  - **Gateway (Decision):** Cancer probability > threshold?
    - **Yes** → Flag as *"Possible Cancer Case"*.
    - **No** → Mark as *"Normal"*.
  - **Task:** Store diagnosis result in database.
  - **End Event:** Diagnostic report generated.
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### 3. Report Generation & Notification Process

**Purpose:** To deliver diagnosis results to the patient and medical staff.  
**Main BPMN steps:**

- **Start Event:** Diagnosis result available.
- **Task:** Generate result summary (normal, suspicious, cancer risk score).
- **Task:** Notify patient via app/email.
- **Gateway (Decision):** Result requires medical review?
  - **Yes** → Forward to oncologist/radiologist dashboard.
  - **No** → Archive report.
- **End Event:** Report delivered and case closed.

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✓ **Summary Table**

Process Name	Main Actors	Key Output
Patient Registration & Data Collection	Patient	Complete patient profile and image upload
Image Analysis & Diagnosis	AI Model, System	Cancer probability and diagnostic result
Report Generation & Notification	System, Doctor, Patient	Diagnostic report & patient notification

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