Project Design Phase-I
Solution Architecture

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Project Name	CovidVision: Advanced COVID-19 Detection from lung x-ray with mechine learning or Deep learning

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions.

Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Example - Solution Architecture Diagram:

Conv.1:3×3×32
MP: 2×2-s-2

Conv.2: 3×3×64
MP: 2×2-s-2

Conv.3: 1×1×128
Conv.4: 1×1×64
Conv.5: 3×3×128
MP: 2×2-s-2
Conv.6: 3×3×256

Conv.7: 1×1×128
Conv.8: 3×3×256
MP: 2×2-s-2
Conv./10/12/: 1×1×256
Conv./9/11/13/: 3×3×512
MP: 2×2-s-2

Conv./14/16/18: 3×3×1024
Conv./15/17/: 1×1×512
Conv./19/20/: 3×3×1024
Conv.22: 3×3×1024

Conv.21: 1×1×64
Conv.22: 3×3×1024
Conv.23: 1×1×70

Input X-ray Image

448
224
224
32
112
112
64
56
56
256
28
28
512
14
14
1024
7
7
1024
7
7
1024
FC1
512
FC2
4096

448

Final prediction result

448

Ground truth (GT)
Predicted

448

Tensor of Prediction (ToP)

1st Detected Bounding Box

5th Detected Bounding Box

Conditional Probability of nine Class

Cell 1
Pr_{conf1} | x_1 | y_1 | w_1 | h_1 | Pr_{conf2} | x_5 | y_5 | w_5 | h_5 | $P_{(COVID-19)}$ | ... | P_{Nodule}

Cell 2
Pr_{conf1} | x_1 | y_1 | w_1 | h_1 | Pr_{conf2} | x_5 | y_5 | w_5 | h_5 | $P_{(COVID-19)}$ | ... | P_{Nodule}

Cell 49
Pr_{conf1} | x_1 | y_1 | w_1 | h_1 | Pr_{conf2} | x_5 | y_5 | w_5 | h_5 | $P_{(COVID-19)}$ | ... | P_{Nodule}

7
7
34

Box1 | Pr_i