Project - Medical Report Generation using X-Ray Images

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Natural Language Processing

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Contributions to the Project - I led the development the dataset,pytroch dataset class, data cleaning and processing of images.

-> Extracted the FINDINGS and IMPRESSIONS from .XML report files and mapped them with the corresponding image_id

	dicom_path	png_path	dicom_id	findings	impressions
0	/home/ubuntu/nlp_project/Code/physionet.org/fi...	/home/ubuntu/nlp_project/Code/physionet.org/fi...	e084de3b-be89b11e-20fe3f9f-9c8d8dfe-4cfd202c.dcm	The cardiac, mediastinal and hilar contours ar...	No acute cardiopulmonary abnormality.
1	/home/ubuntu/nlp_project/Code/physionet.org/fi...	/home/ubuntu/nlp_project/Code/physionet.org/fi...	2a2277a9-b0ded155-c0de8eb9-c124d10e-82c5caab.dcm	The cardiac, mediastinal and hilar contours ar...	No acute cardiopulmonary abnormality.
2	/home/ubuntu/nlp_project/Code/physionet.org/fi...	/home/ubuntu/nlp_project/Code/physionet.org/fi...	ea030e7a-2e3b1346-bc518786-7a8fd698-f673b44c.dcm	The lungs are clear of focal consolidation, pl...	No acute cardiopulmonary process.
3	/home/ubuntu/nlp_project/Code/physionet.org/fi...	/home/ubuntu/nlp_project/Code/physionet.org/fi...	174413ec-4ec4c1f7-34ea26b7-c5f994f8-79ef1962.dcm	There is no focal consolidation, pleural effus...	No acute cardiopulmonary process.
4	/home/ubuntu/nlp_project/Code/physionet.org/fi...	/home/ubuntu/nlp_project/Code/physionet.org/fi...	02aa804e-bde0afdd-112c0b34-7bc16630-4e384014.dcm	There is no focal consolidation, pleural effus...	No acute cardiopulmonary process.

-> Wrote a Bash script to download images from a public portal,and thereby increasing the dataset size for training.
->Developed the logic to convert dcm to png format and concatenate them with the old 7k png images increasing the dataset size to around 15k.
-> Led the development of inference code for BioMed Clip model and CXR mate model, and testing of BLIP2 model on evaluation sets.
-> Built a custom densenet121 for feature extraction which formed the base for the ChexNet module used for extracting labels from images.