This assignment aims to segment the lungs in Chest X-rays.

Chest X-ray dataset is available for open access at https://www.nih.gov/news-events/news-releases/nih-clinical-center-provides-one-largest-publicly-available-chest-x-ray-datasets-scientific-community

Folder shall be taken according to the roll number mapping mentioned at the last of this document. The folder contains 10 samples in training set and 10 samples in testing set as .png format.

The data folder can be downloaded from:
https://drive.google.com/drive/folders/1g4eca0P_f7NCN1D8q3XTYsQz9WZstYIB?usp=sharing

Note: For all parts, code in MATLAB or Python and summarize your observations and results in a document, illustrate the code pipeline through flow chart and pseudocode and submit the code and summary document as one zip file.

To avoid confusion in the code execution sequence, you can attach a readme file in .txt format, if required.

Try to submit the assignment on or before 10th November 2020, 11.59 PM. Late submissions will be accepted till 12th November 2020, 11.59 PM with 1.5 marks (out of 10) as penalty.

Part 1: Data labeling: Generate ground truth for the images given

Part 2: Segmentation: Create a shape prior using the ground truth, use this as initialization for Active contour model to segment the lungs.

Part 3: Validation: Compare the segmentation results with the ground truth using metrics

References:

1. P. Annangi, S. Thiruvenkadam, A. Raja, H. Xu, X. Sun and L. Mao, "A region based active contour method for x-ray lung segmentation using prior shape and low level features," *2010 IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Rotterdam, 2010, pp. 892-895, doi: 10.1109/ISBI.2010.5490130

2. Marwa Braiki, Abdesslam Benzinou, Kamal Nasreddine, Nolwenn Hymery, Automatic Human Dendritic Cells Segmentation Using K-Means Clustering and Chan-Vese Active Contour Model, Computer Methods and Programs in Biomedicine, Volume 195,2020,105520,ISSN 0169-2607, https://doi.org/10.1016/j.cmpb.2020.105520.

Roll No.	Folder name
AM19D037	1
AM19D042	2
AM19M031	3
ED16B010	4
ED17B006	5
ED17B009	6
ED17B018	7
ED17B019	8
ED17B020	9
ED17B021	10
ED17B022	11
ED17B023	12
ED17B028	13
ED17B031	14
ED17B034	15
ED17B040	16
ED17B044	17
ED17B046	18
ED17B047	19
ED17B050	20
ED17B051	21
ED17B056	22
ED19D700	23
ED20S010	24
EE19D422	25
EE19S019	26
EE19S020	27
EE19S042	28
ME17B168	29
ME17B179	30