

PROJECT REPORT

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Title: One Year Life Expectancy Post Thoracic Surgery Using IBM Watson

Category: Machine Learning

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1. INTRODUCTION

1.1 OVERVIEW

Thoracic surgery refers to operations on organs in the chest, including the heart, lungs and esophagus. Examples of thoracic surgery include coronary artery bypass surgery, heart transplant, lung transplant and removal of parts of the lung affected by cancer. Specialized thoracic surgeons treat lung cancer.

1.2 PURPOSE

Thoracic surgery, also known as chest surgery, may be used to diagnose or repair lungs affected by cancer, trauma or pulmonary disease. For lung cancer, your surgeon may remove nodules, tumors and lymph nodes to diagnose, stage and treat the disease.

Thoracic surgery procedures may be performed with either minimally invasive techniques or an open surgical procedure called a thoracotomy. Your surgeon may opt for a thoracotomy when it is necessary to see large portions of the lung or inner chest cavity. The procedure may be performed to remove the entire lung or a portion of the lung.

2. LITERATURE SURVEY

2.1 EXISTING PROBLEM

Patients who receive thoracic surgery for lung cancer do so with the expectation that their lives will be prolonged for a sufficient amount of time afterwards.

2.2 PROPOSED SOLUTION

The problem here is whether there is a way to determine post operative 1 year survival of lung cancer patients utilizing their habits like smoking and any other problems like asthma, cough, pain, diabetes and also depends on th

3. THEORITICAL ANALYSIS

3.1 BLOCK DIAGRAM

No block diagram in this case.

3.2 HARDWARE/SOFTWARE DESIGNING

In this project there is no hardware used.

Here in this project we are developing an application user interface.so the software required are: IBM cloud,Watson Studio,Node red application,Auto AI.

4. EXPERIMENTAL INVESTIGATIONS

The data was collected at Wroclaw Thoracic Surgery Centre for patients who underwent major lung resections for primary lung cancer in the years 2007 to2011.

ATTRIBUTE INFORMATION

1. DGN: Diagnosis - specific combination of ICD-10 codes for primary and secondary as well multiple tumours if any (DGN3,DGN2,DGN4,DGN6,DGN5,DGN8,DGN1)
2. PRE4: Forced vital capacity - FVC (numeric)
3. PRE5: Volume that has been exhaled at the end of the first second of forced expiration - FEV1 (numeric)
4. PRE6: Performance status - Zubrod scale (PRZ2,PRZ1,PRZ0)
5. PRE7: Pain before surgery (T,F)
6. PRE8: Haemoptysis before surgery (T,F)
7. PRE9: Dyspnoea before surgery (T,F)
8. PRE10: Cough before surgery (T,F)
9. PRE11: Weakness before surgery (T,F)
10. PRE14: T in clinical TNM - size of the original tumour, from OC11 (smallest) to OC14 (largest) (OC11,OC14,OC12,OC13)
11. PRE17: Type 2 DM - diabetes mellitus (T,F)
12. PRE19: MI up to 6 months (T,F)
13. PRE25: PAD - peripheral arterial diseases (T,F)
14. PRE30: Smoking (T,F)
15. PRE32: Asthma (T,F)
16. AGE: Age at surgery (numeric)
17. Risk1Y: 1 year survival period - (T)rue value if died (T,F)

5. FLOW CHART

At first go to manage palette and install dashboard.

Now, create the flow with the help of following nodes:

Inject

Assistant

Function

Debug

UI Form UI Text

6. RESULT

Finally our Node-RED dashboard integrates all the components and displayed in the dashboard by typing url: <https://node-red-izlbw.eu-gb.mybluemix.net/ui> in browser.

7. ADVANTAGES & DISADVANTAGES

➤ ADVANTAGES:

This project helps in predicting the risk of survival of patients and helps them in curing the problems if any.

8. APPLICATIONS

This project can be further improved with other features and can be deployed in hospitals for use.

9. CONCLUSION

By doing the above procedure and all we successfully created one year life expectancy of patients post operative thoracic surgery using Watson studio, Node RED and cloud functions

10. FUTURE SCOPE

Thus this project can be used to predict the risk of patients post operative thoracic surgery for one year. This can be used in Hospitals. This is one of the future scope of this project.

11. BIBLIOGRAPHY

- <https://archive.ics.uci.edu/ml/datasets/Thoracic+Surgery+Data>
- <https://cloud.ibm.com/functions/>

12. APPENDIX

Student Dashboard x IISPS_INT_3519_One Ye x Slack | 08-july | Career x (50) IBM Smartbridge l x Node-RED Dashboard x watson studio - Google x + -

https://node-red-izlbw.eu-gb.mybluemix.net/ui/#/0?socketid=TSvIWJ3RpVxe7r_wAAAm

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One Year Life Expectancy Post Thoracic Surgery

M	87
DGN	DGN5
PRE4	3-2
PRE5	0.98
PRE6	PRZ2
PRE7	T
PRE8	F
PRE9	T
PRE10	F
PRE11	F
PRE14	OC12
PRE17	F
PRE19	T
PRE25	T

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Home

PRE7	T
PRE8	F
PRE9	T
PRE10	F
PRE11	F
PRE14	OC12
PRE17	F
PRE19	T
PRE25	T
PRE30	F
PRE32	T
AGE	56

SUBMIT CANCEL

Risk 1 YR F