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D207

Performance assesement

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A.  How much effect does complication risk have on readmission to the hospital?

2. Evaluating which patients have complications, and are presumably more likely to be readmitted, could lower costs. It would be cheaper to keep a patient and get them to a better state of health, rather than get them to an okay state of help and they would have to return sooner. It should increase patient satisfaction as patients would likely enjoy only having to go to the hospital once rather than coming back (it should also save patients money). Finally in times of crisis (like the peak of Covid-19), it would be better to have all beds available for new patients, so the hospital could service more patients, rather than the same patients.

3.  Readmission would be the independent variable. It would make sense for complication risk to be one of the top dependent variables.

B.  Describe the data analysis by doing the following:

1.  newdf = pd.crosstab(df['Complication\_risk'], df ['ReAdmis']) – Crosstab to pull variables we’re looking at

observed\_values = newdf.values -- Put pulled variables into array

print(observed\_values)

print (newdf)

stat, p, dof, expected = chi2\_contingency (observed\_values)

prob = .95

critical = chi2.ppf (prob, dof)

print ('probability = %.3f, critical = %.3f, stat = %.3f' % (prob,critical,stat))

if abs (stat) >= critical: asdfasdfasdf

print ('Dependent (reject H0')

else: asdfasdfasd - - Chi square testing asdfasdf

print ('Independent (fail to reject H0)')

alpha = 1.0 - prob

print ('significance = %.3f, p = %.3f' % (alpha, p))

if p <= alpha: sdfgfsdfgsdf

print ('Dependent (reject H0')

else: sdfgsdfg

print ('Independent (fail to reject H0)')

sdfgsdfgsdf

2. probability = 0.950, critical = 5.991, stat = 0.159

Independent (fail to reject H0)

significance = 0.050, p = 0.924

Independent (fail to reject H0)

3.  Chi- square test was really the only option as all variables we looked at are categorical.

C.  Age is skewed right, meaning there’s a lot more values in the lower values. We can see most patients have an income between 25000 and 50000. Almost all observations look to be between 0 and 100000. Age looks to be fairly distributed, maybe a small majority in the 80 – 90 range. Item 1 and Item 2 look to be normally distributed. Majority of outcomes are 3 and 4, which look to be near the middle. Graphs are attached in Graphs.docx

D There doesn’t look to be any relationship between age and income. A lot of our income looks to be between 25000 and 50000. There looks to be every income level at every age. There seems to be a casual relationship between Item 1 (Timely Admission) and Item 2 (Timely Treatments). There doesn’t seem to be a lot of ordered parts like 1,8 and or 2,7. Most of the points are between 2 – 5.

E.  1.  Our P-Value is p-value = 0.923567890607327. We are unable to reject H0. It seems like co mplication risk isn’t the best indicator of readmission.

2 Chi square testing is sensitive to sample size. One thing to worry about with chi testing is having too large a sample size and seeing significant relationships when there are not. Since we didn’t see a relationship, we don’t have to worry about this. Another issue is that chi will only tell us that variables are related. It won’t help us with casual relationships. It would make sense that there is a casual relationship between patients having complication risks and having a higher chance of readmission. However, chi testing doesn’t help us with that.

3.  We look to have a very high p-value. Perhaps we could look if any other variables look to be a better indicator of readmission (ie have a lower P-Value). However, our analysis shows that complication risk isn’t a great indicator for readmission and shouldn’t be looked at in our attempt to reduce readmission.

E. Third-Party Code References

None used

F. References

None used