**Midterm Practice questions**

***Q1 | significance level |***

*When performing a hypothesis test, increasing the significance level $$\alpha$$ (alpha) (making it larger) increases our chances of:*

*( ) Correctly rejecting the alternative hypothesis*

***() Incorrectly rejecting the null hypothesis when the null hypothesis is true (Type I Error)***

*( ) Incorrectly accepting the null hypothesis when the alternative is true (Type II Error)*

*( ) None of the above*

**Q2 | DataFrame indexing |**

Consider the dataframe

```python

df1 = pd.DataFrame

([[3, 1, 4, 2],

[2, 5, 6, 3],

[4, 8, 0, 7],

[6, 2, 4, 9]],

columns = ['col1','col2','col3','col4'],

index = ['row1','row2','row3','row4'])

```

Mark **all of** the following that will return the third row, second column from `df1` (value `8`)?

[ ] `df1.iloc[3,2]`

[X] `df1.iloc[2].loc['col2']`

[X] `df1.loc['row3','col2']`

[ ] `df1.loc[:,'col2'].iloc[1]`

**Q3 | confidence intervals |**

The array `random\_means` contains the means of random bootstrap samples from some dataset. If we use this (small) set of random means to calculate the 80% confidence interval of the sample mean of the original dataset, what are the endpoints of the Confidence Interval?

```random\_means = np.array([1,2,3,4,5,6,7,8,9,10])```

(X) `(2,9)`

( ) `(3,7)`

( ) `(1,2)`

( ) `(0.4,0.8)`