BrainDead23 Hackathon Submission

Team Name: Codehack_21

Team Members

- Aritro Ghosh
- Avinash Bhojanapalli

First Problem statement: Placement stats

sl_no	gender	ssc_p	ssc_b	hsc_p	hsc_b	hsc_s	degree_p	degree_t	workex	etest_p	specialisation	mba_p	status	salary
1	M	67.00	Others	91.00	Others	Commerce	58.00	Sci&Tech	No	55.0	Mkt&HR	58.80	Placed	270000.0
2	M	79.33	Central	78.33	Others	Science	77.48	Sci&Tech	Yes	86.5	Mkt&Fin	66.28	Placed	200000.0
3	M	65.00	Central	68.00	Central	Arts	64.00	Comm&Mgmt	No	75.0	Mkt&Fin	57.80	Placed	250000.0
4	M	56.00	Central	52.00	Central	Science	52.00	Sci&Tech	No	66.0	Mkt&HR	59.43	Not Placed	NaN
5	M	85.80	Central	73.60	Central	Commerce	73.30	Comm&Mgmt	No	96.8	Mkt&Fin	55.50	Placed	425000.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
211	M	80.60	Others	82.00	Others	Commerce	77.60	Comm&Mgmt	No	91.0	Mkt&Fin	74.49	Placed	400000.0
212	M	58.00	Others	60.00	Others	Science	72.00	Sci&Tech	No	74.0	Mkt&Fin	53.62	Placed	275000.0
213	M	67.00	Others	67.00	Others	Commerce	73.00	Comm&Mgmt	Yes	59.0	Mkt&Fin	69.72	Placed	295000.0
214	F	74.00	Others	66.00	Others	Commerce	58.00	Comm&Mgmt	No	70.0	Mkt&HR	60.23	Placed	204000.0
215	M	62.00	Central	58.00	Others	Science	53.00	Comm&Mgmt	No	89.0	Mkt&HR	60.22	Not Placed	NaN

Second Problem statement: Placement stats

```
Epoch 1/100
46/46 [==============================] - 53s 1s/step - loss: 1.5202 - accuracy: 0.4213 - val_loss: 1.1139 - val_accuracy: 0.5470
Epoch 2/100
46/46 [==============================] - 43s 946ms/step - loss: 0.9448 - accuracy: 0.5988 - val_loss: 0.9537 - val_accuracy: 0.6050
Epoch 3/100
46/46 [==============================] - 43s 947ms/step - loss: 0.7800 - accuracy: 0.6837 - val_loss: 0.8407 - val_accuracy: 0.6409
Epoch 4/100
46/46 [==============================] - 47s 1s/step - loss: 0.7159 - accuracy: 0.7141 - val_loss: 0.7990 - val_accuracy: 0.6657
Epoch 5/100
46/46 [==============================] - 47s 1s/step - loss: 0.6298 - accuracy: 0.7376 - val_loss: 0.7727 - val_accuracy: 0.7044
Epoch 6/100
46/46 [==============================] - 45s 988ms/step - loss: 0.5838 - accuracy: 0.7728 - val_loss: 0.7521 - val_accuracy: 0.6906
Epoch 7/100
46/46 [==============================] - 43s 947ms/step - loss: 0.5401 - accuracy: 0.7818 - val_loss: 0.7119 - val_accuracy: 0.7376
Epoch 8/100
46/46 [==============================] - 42s 926ms/step - loss: 0.4973 - accuracy: 0.8073 - val_loss: 0.6918 - val_accuracy: 0.7486
Epoch 9/100
46/46 [==============================] - 42s 921ms/step - loss: 0.4789 - accuracy: 0.8218 - val_loss: 0.7339 - val_accuracy: 0.6906
Epoch 10/100
46/46 [==============================] - 42s 926ms/step - loss: 0.4528 - accuracy: 0.8301 - val_loss: 0.7203 - val_accuracy: 0.7017
Epoch 11/100
46/46 [==============================] - 42s 923ms/step - loss: 0.4381 - accuracy: 0.8384 - val_loss: 0.6696 - val_accuracy: 0.7624
Epoch 12/100
46/46 [==============================] - 42s 927ms/step - loss: 0.4168 - accuracy: 0.8474 - val_loss: 0.6888 - val_accuracy: 0.7459
Epoch 13/100
46/46 [==============================] - 45s 979ms/step - loss: 0.3958 - accuracy: 0.8564 - val_loss: 0.6652 - val_accuracy: 0.7541
Epoch 14/100
46/46 [==============================] - 43s 945ms/step - loss: 0.3952 - accuracy: 0.8501 - val_loss: 0.6682 - val_accuracy: 0.7680
Epoch 15/100
46/46 [==============================] - 43s 932ms/step - loss: 0.3797 - accuracy: 0.8646 - val_loss: 0.6586 - val_accuracy: 0.7597
Epoch 16/100
46/46 [==============================] - 43s 940ms/step - loss: 0.3601 - accuracy: 0.8709 - val_loss: 0.6630 - val_accuracy: 0.7624
Epoch 17/100
46/46 [==============================] - 43s 946ms/step - loss: 0.3428 - accuracy: 0.8840 - val_loss: 0.6782 - val_accuracy: 0.7514
```

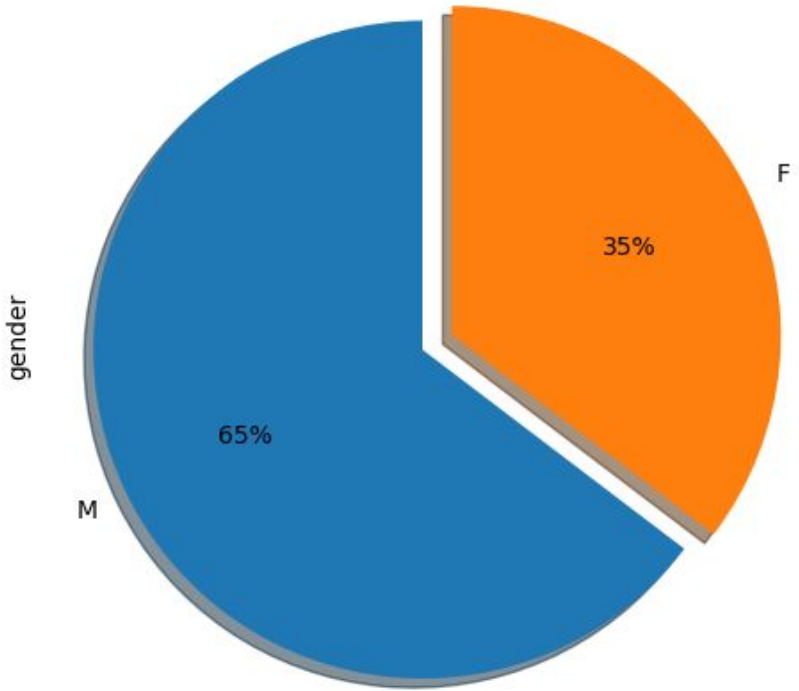
All observations present in codehack_21_brain_dead.iypnb file

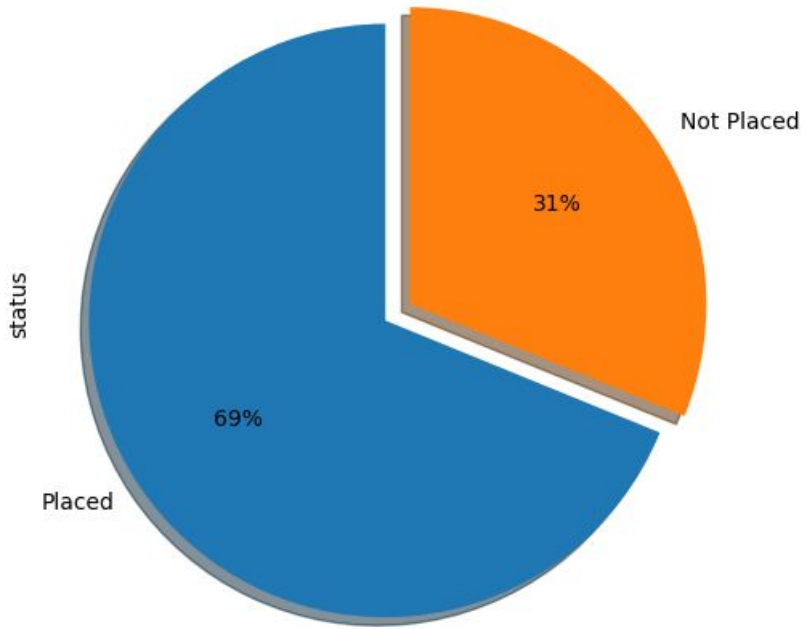
Correlation between all attributes and placement status

gender	0.090670
ssc_p	0.607889
ssc_b	0.037297
hsc_p	0.491228
hsc_b	0.016945
hsc_s	0.033442
degree_p	0.479861
degree_t	-0.020352
workex	0.276060
etest_p	0.127639
specialisation	-0.250655
mba_p	0.076922
status	1.000000
salary	0.865774

In this list, we can see that high school percentage, degree percentage and work experience carry the highest correlation for placement status. We can ignore salary as it is valid only if the student is placed.

Moreover, we can notice a negative correlation for the specialization and the degree type.


gender
F
35%
65%
M


status
Not Placed
31%
69%
Placed

Hypothesis Testing: check if etest_p is significant wrt status

H0: etest_p is not significant wrt status

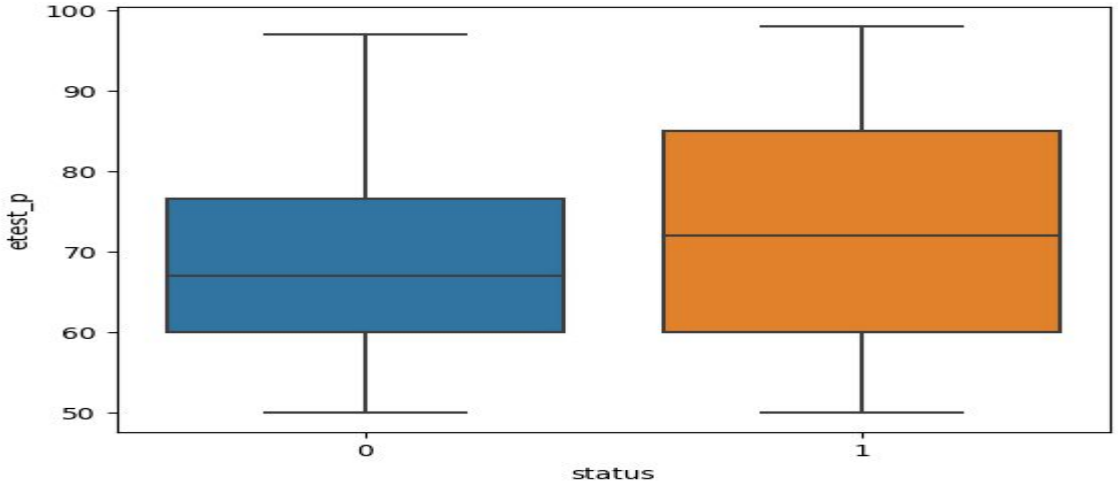
H1: etest_p is significant wrt status

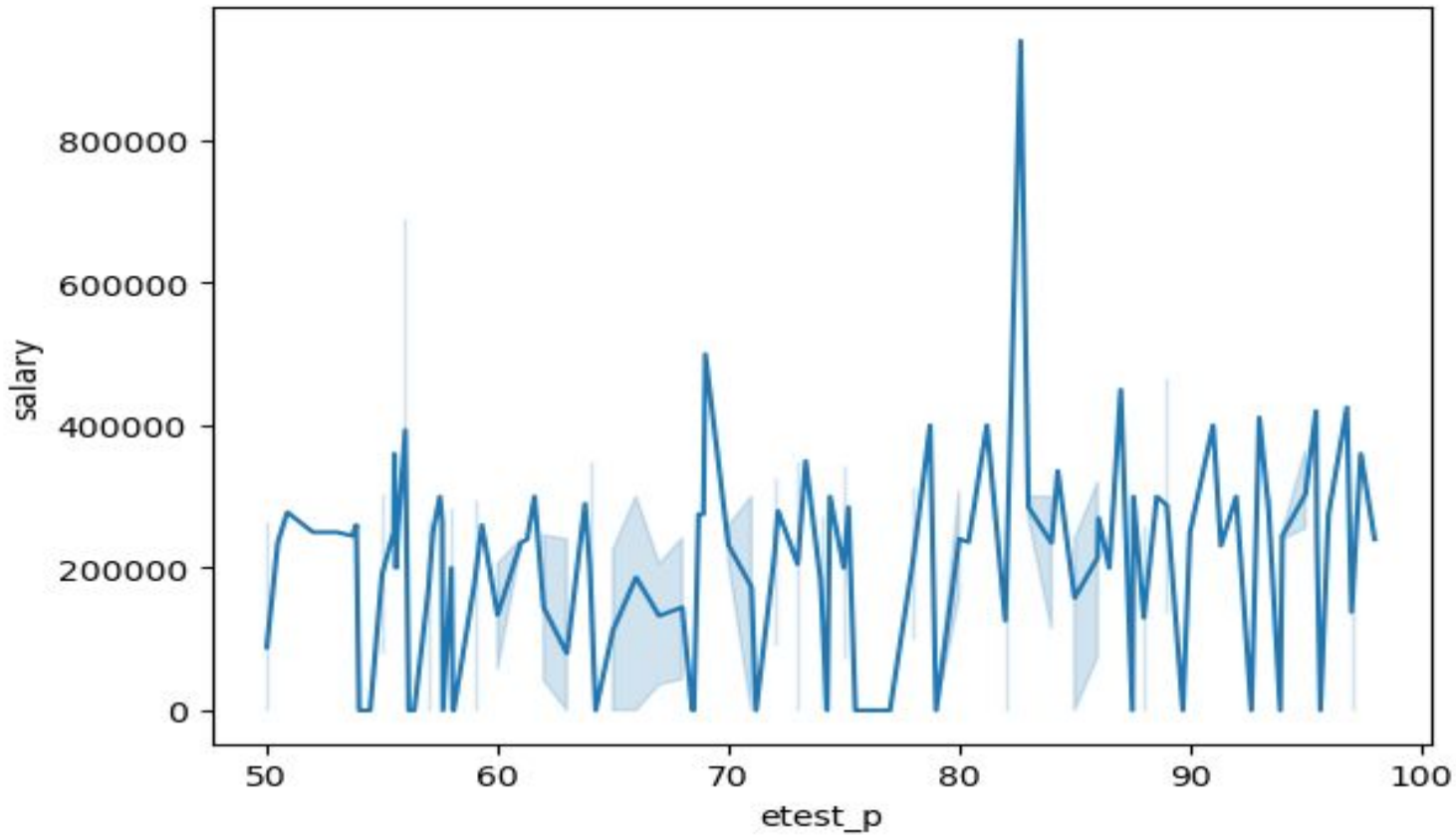
alpha = 0.05

since etest_p is continuous, we will use ANOVA test

ANOVA test

status	count	mean	std	min	25%	50%	75%	max
0	67.0	69.587910	11.930687	50.0	60.0	67.0	76.5	97.0
1	148.0	73.238041	13.729333	50.0	60.0	72.0	85.0	98.0




800000
600000
400000
200000
0
salary
50
60
70
80
90
100
etest_p

Second Problem statement: Detecting Emotional Sentiment in Cartoons

Remaining observations in codehack_21_brain_dead.ipynb file

```
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