**Python**

**Question 1:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Question 2:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Question 3:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Question 4:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Question 5:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Question 6:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Question 7:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Question 8:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Question 9:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Question 10:**

**Ans :** [**https://github.com/kannalokesh13/datascience\_assignments/blob/main/py\_python.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/py_python.ipynb)

**Statistics**

**Question 1:**

**Ans :**

**The correlation will range from -1 to +1, -1 indicates perfectly negative correlation and the +1 indicates**

**the perfectly position and the zero indicates no correlation.**

**The correlation between SAT score and GPA is 0.7 that indicates the SAT score and GPA are positively correlated.**

**That means if SAT score increases then the GPA also increases.**

**Question 2:**

**Ans :**

**z1 = (160 - 170) / 10 = -1**

**z2 = (180 - 170) / 10 = 1**

**Area1 = 0.1587 (for z = -1)**

**Area2 = 0.8413 (for z = 1)**

**Percentage = (Area2 - Area1) \* 100 = (0.8413 - 0.1587) \* 100 = 68.26%**

**z = (175 - 170) / (10 / sqrt(100)) = 5 / 1 = 5**

**z = 5 is very close to 0**

**z = (x - mean) / standard deviation**

**z = (185 - 170) / 10 = 1.5**

**x = z \* standard deviation + mean**

**x = -1.645 \* 10 + 170 = 153.55 cm (approx.)**

**CV = (standard deviation / mean) \* 100**

**CV = (10 / 170) \* 100 ≈ 5.88%**

**skewness is zero........**

**Question 3:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task9.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task9.ipynb)

**Question 4:**

**Ans :**

**Probability = 4 / 20**

**Probability = 0.2**

**Question5:  
Ans:**

**P(A) = 0.8 )**

**P(B|A) = 0.05**

**P(B|not A) = 0.1**

**P(A|B) = (P(A) \* P(B|A)) / P(B)**

**P(B) = P(A) \* P(B|A) + P(not A) \* P(B|not A)**

**P(not A) = 1 - P(A) = 1 - 0.8 = 0.2**

**P(B) = (0.8 \* 0.05) + (0.2 \* 0.1)**

**P(B) = 0.04 + 0.02**

**P(B) = 0.06**

**P(A|B) = (P(A) \* P(B|A)) / P(B)**

**P(A|B) = (0.8 \* 0.05) / 0.06**

**P(A|B) = 0.04 / 0.06**

**P(A|B) = 0.6667**

**Question 6:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task9.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task9.ipynb)

**Question 7:**

**Ans:**

**2Y + X - 5 = 0**

**2Y = -X + 5**

**Y = (-1/2)X + 5/2**

**X on Y: Y = (-1/2)X + 5/2**

**Y on X: 2X + 3 - 8 = 0**

**a. Variance of Y:**

**Var(Y) = Var(X) \* (1 - r^2)**

**the correlation coefficient (r) between X and Y is sqrt(1/2) or 0.7071.**

**Var(Y) = 4 \* (1 - 0.7071^2)**

**Var(Y) = 4 \* (1 - 0.5)**

**Var(Y) = 4 \* 0.5**

**Var(Y) = 2**

**b. Coefficient of determination of X and Y:**

**For X on Y:**

**The coefficient of determination for X on Y is the square of the correlation coefficient between X and Y. So, R^2(X on Y) = 0.7071^2 = 0.5.**

**For Y on X:**

**The coefficient of determination for Y on X is the square of the correlation coefficient between Y and X. Since the correlation coefficient is the same as for X on Y, R^2(Y on X) = 0.5.**

**c. Standard error of estimate:**

**For X on Y:**

**The standard error of estimate (SEest) of X on Y is given by the formula:**

**SEest(X on Y) = sqrt((1 - R^2(X on Y)) \* Var(X))**

**Substituting the values:**

**SEest(X on Y) = sqrt((1 - 0.5) \* 4)**

**SEest(X on Y) = sqrt(0.5 \* 4)**

**SEest(X on Y) = sqrt(2)**

**For Y on X:**

**SEest(Y on X) = sqrt((1 - R^2(Y on X)) \* Var(Y))**

**SEest(Y on X) = sqrt((1 - 0.5) \* 2)**

**SEest(Y on X) = sqrt(0.5 \* 2)**

**SEest(Y on X) = sqrt(1)**

**Question 8:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task9.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task9.ipynb)

**Question 11:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task9.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task9.ipynb)

**Machine Learning**

**Question 1:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task1.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task1.ipynb)

**Question 2:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task2.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task2.ipynb)

**Question 4:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task4.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task4.ipynb)

**Question 6:  
Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task6.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task6.ipynb)

**Question 7:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task7.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task7.ipynb)

**Question 8:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/task8.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/task8.ipynb)

**Deep Learning**

**Question 1:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/deep\_task1.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/deep_task1.ipynb)

**Question 3:**

**Ans:**

[**https://github.com/kannalokesh13/datascience\_assignments/blob/main/deep\_task3.ipynb**](https://github.com/kannalokesh13/datascience_assignments/blob/main/deep_task3.ipynb)

**THANK YOU FOR GIVING THIS OPPURTUNITY**