

Machine Learning Assignment 65

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February 24, 2021

Problem 2

(aa)

$$\frac{\binom{48}{4}\binom{4}{1}}{\binom{52}{5}}$$

(ab)

$$1 - \frac{\binom{48}{5}}{\binom{52}{5}}$$

(b)

$$1 - \frac{{}_6P_6}{6^5}$$

(c)

The range of Z will be $[-5, 5]$. The lowest value it can get is $1 - 6$ and the highest value it can get is $6 - 1$, which result in the lower and upper bounds.

$$P(z) = \begin{cases} \frac{1}{36} & \text{for } z = -5 \\ \frac{1}{18} & \text{for } z = -4 \\ \frac{1}{12} & \text{for } z = -3 \\ \frac{1}{9} & \text{for } z = -2 \\ \frac{5}{36} & \text{for } z = -1 \\ \frac{1}{6} & \text{for } z = 0 \\ \frac{5}{36} & \text{for } z = 1 \\ \frac{1}{9} & \text{for } z = 2 \\ \frac{1}{12} & \text{for } z = 3 \\ \frac{1}{18} & \text{for } z = 4 \\ \frac{1}{36} & \text{for } z = 5 \end{cases}$$

Problem 3

Harder Questions

Well done for getting this far.

The next questions are optional and only for students who are finding the basic questions too easy.

11. 😊

The capital of Luxembourg is Luxembourg. Show all the countries where the capital is the same as the name of the country.

Find the country where the name is the capital city.

```
SELECT name
FROM world
WHERE name LIKE capital
```

Submit SQL

Restore default

Correct answer

name
Djibouti
Luxembourg
San Marino
Singapore

12. 😊

The capital of Mexico is Mexico City. Show all the countries where the capital has the country together with the word "City".

Find the country where the capital is the country plus "City".

The concat function

```
SELECT name
FROM world
WHERE capital LIKE concat(name, ' City')
```

Submit SQL

Restore default

Correct answer

name
Guatemala
Kuwait
Mexico
Panama

13. 😊

Find the capital and the name where the capital includes the name of the country.

```
SELECT capital, name
FROM world
WHERE capital LIKE CONCAT('%', name, '%')
```

Submit SQL

Restore default

Correct answer

capital	name
Andorra la Vella	Andorra
Djibouti	Djibouti
Guatemala City	Guatemala
Kuwait City	Kuwait
Luxembourg	Luxembourg
Mexico City	Mexico
Monaco-Ville	Monaco

14. 😊

Find the capital and the name where the capital is an extension of name of the country.

You should include Mexico City as it is longer than Mexico. You should not include Luxembourg as the capital is the same as the country.

```
SELECT capital, name
FROM world
WHERE capital LIKE CONCAT('%', name, '%')
AND capital != name
```

Submit SQL

Restore default

Correct answer

capital	name
Andorra la Vella	Andorra
Guatemala City	Guatemala
Kuwait City	Kuwait
Mexico City	Mexico
Monaco-Ville	Monaco
Panama City	Panama

15. 😊

For Monaco-Ville the name is Monaco and the extension is -Ville.

Show the name and the extension where the capital is an extension of name of the country.

You can use the SQL function REPLACE.

```
SELECT name, REPLACE(capital, name, '')
FROM world
WHERE capital LIKE CONCAT('%', name, '%')
AND capital != name
```

Submit SQL

Restore default

Correct answer

name	REPLACE(capit..
Andorra	la Vella
Guatemala	City
Kuwait	City
Mexico	City
Monaco	-Ville
Panama	City


SOLLEARN

Inheritance & Polymorphism

XP 288

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Inheritance 1/6 4 questions ✓	Protected Members 2/6 3 questions ✓	Derived Class Constructor & Destructor 3/6 4 questions ✓	Polymorphism 4/6 4 questions ✓
Virtual Functions 5/6 3 questions ✓	Abstract Classes 6/6 5 questions ✓	Module 7 Quiz 6 questions ✓	

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