**Segment A. Mathematics Test**

1. Which of the following states contributed approximately 25% of the combined production of all the 4 country in the year 2002?

**Answer: a. Indonesia**

Total: 22+19+26+11+13= 91

Indonesia: 22/91 = **24.18%**

Singapore: 19/91 = 20.88%

Malaysia: 26/91 = 28.57%

Thailand: 11/91 = 12.1%

Philippines: 13/91 = 14.29%

2. What was the difference in volumes exported in 1997 and 1998?

**Answer: d. 10,000,000 kg**

1997 = 150,000,000 kg

1998 = 160,000,000 kg

Difference = 160-150 = **10,000,000 kg**

1. In which year was the value per kg the least?

1995: 150/100 = **1.5**

1996: 150/75 = 2.0

1997: 330/150 = 2.2

1998: 400/160 = 2.5

1999: 500/200 = 2.5

**Answer: a. 1995**

1. Which of the following statements is/are true regarding the consumption of chocobar?  
   (in ‘000 bars)

1993 to 1994: 118-124 = -6,000

1994 to 1995: 128-118 = 10,000

**1995 to 1996: 92-128 = -36,000**

**1996 to 1997: 134 -92 = 42,000**

1997 to 1998: 126-134 = -8,000

1998 to 1999: 122 – 126 = -4,000

**Answer: c. The steepest fall in the consumption of chocobar follows the steepest increase in consumption.**

5. Over the period 1993-94 to 1997-98, there has been a/an \_\_\_\_\_ in fertiliser subsidy.

Data from 93 to 98:

Indigenous fertiliser: 3000, 3400, 3350, 3300, 4800

Imported fertiliser: 200, 1142, 1039, 1499, 1000

**Answer: d. Inconsistent Expenditure.**

6. In which year was the bank credit per sick unit the maximum?

Bank credit/sick unit on each year ($ billions/’000s sick unit):

1996: 0.75

1997: 0.666

1998: 0.4167

1999: 0.3875

2000: 0.4

**Answer: a. 1996**

7. For strategy genre, in which year was the ratio of rejection to production the highest among the given years?

To find: ratio of **rejection** to **production**

1995: 0.06

1996: 0.0444

**1997: 0.0625**

1998: 0.05476

1999: 0.0521

2000: 0.05122

**Answer: c. 1997**

8. What is the ratio of the distribution of proteins in the muscles to that of proteins in the bones?

Distribution of proteins in muscles: 1/3

Distribution of proteins in the bones: 1/6

1/3:1/6 = 2:1

**Answer: b. 2:1**

**Segment B. SQL Query Test**

\*Note: My answer will be attached as “agate2.sql” but the overall input & output will be written here.

\*\*The output result is based on the dummy data provided.

1. Create an SQL query that shows the TOP 3 authors who sold the least books in total.

**Answer:**

**SELECT author\_name, SUM(sold\_copies) as total\_sold FROM authors a**

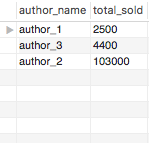
**LEFT JOIN books b on a.book\_name = b.book\_name**

**GROUP BY author\_name**

**ORDER BY total\_sold ASC**

**LIMIT 3;**

**Output:**

****

2. Write an SQL query to find out how many users inserted more than 2000 but less than 4000 images in their presentations!

**Answer:**

SELECT

COUNT(user\_id) AS no\_of\_unique\_users

FROM

(SELECT

user\_id, COUNT(event\_date\_time) AS times\_inserted

FROM

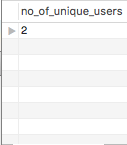
event\_log

GROUP BY user\_id

HAVING (COUNT(event\_date\_time) < 4000

AND COUNT(event\_date\_time) > 2000)) AS T;

**Output:**

****

3. Print every **department** where the **average salary** per **employee** is **over than** **500$!**

**Answer:**

1. To display the department\_name that fulfill the requirements (avg(salary) > 500) **only** and sorted by the average salary the query used will be**:**

**Query input a:**

SELECT

department\_name

FROM

(SELECT

department\_name,

CAST(AVG(salary) AS DECIMAL (10 , 2 )) AS average\_sal

FROM

employees e

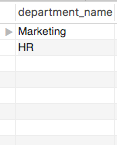
LEFT JOIN salaries s ON e.employee\_id = s.employee\_id

GROUP BY department\_name

HAVING (average\_sal > 500)) AS T

ORDER BY average\_sal;

**Output a:**

****

1. To display the department\_name and the average salary sorted by average salary the query used will be:

**Query input b:**

SELECT

department\_name,

CAST(AVG(salary) AS DECIMAL (10 , 2 )) AS average\_sal

FROM

employees e

LEFT JOIN

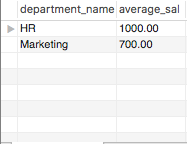
salaries s ON e.employee\_id = s.employee\_id

GROUP BY department\_name

HAVING (average\_sal > 500)

ORDER BY average\_sal DESC;

**Output b:**

****

1. Create SQL Query that **show Person Data** with each their **Deposito Amount**. Data sorted by **PERSON\_ID.**

**Answer**

**Query Input:**

SELECT

d.deposito\_id, d.amount, p.person\_id, p.name AS person\_name

FROM

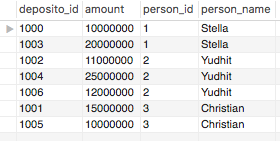
agate\_person p

LEFT JOIN

agate\_deposito d ON d.person\_id = p.person\_id

ORDER BY person\_id;

**Output:**

****

**Segment C. Study Case**

1. What do you think is **2 most important KPI’s** that Tim must know to **increase Game X Revenue?**

**Churn rate** (sometimes called **attrition rate**), in its broadest sense, is a measure of the number of individuals or items moving out of a collective group over a specific period. It is one of two primary factors that determine the [steady- state](https://en.wikipedia.org/wiki/Steady_state) level of customers a business will support.

[**https://gameanalytics.com/blog/50-kpi-measure-mobile-game-app.html**](https://gameanalytics.com/blog/50-kpi-measure-mobile-game-app.html)

*Engagement KPI’s* : Retention Rate, Sessions, Session Length, Session Interval, Session Depth, Avg. Screens per Visit, DAU, MAU, Social Shares (Banner, Video?), Brand Awareness, Churn Rate

*Revenue-Focused/Financial KPI’s:* ARPU (Avg. Revenue Per User; IAP, ads, subs, paid downloads), Lifetime Value (LTV), Time to First Purchase, Purchases, Customer Acquisition Cost (CAC), Cost Per Acquisition (CPA), Customer Lifetime Value (CLV), eCAC (Effective Customer Acquisition Cost), eCPM (Effective Cost Per Mille), Paid Conversion Rate, Organic Conversion Rate, Return on Investment (ROI), Cost Per Install.

*User Experience KPI’s* : **Load Time,** OS, Devices, Carriers (important), Screen Dimension/Resolution, Permissions Granted, API Latency

*Mobile App Marketing KPI’s*: Install Source (for marketing campaign), Channel Breakdown, Geo-metrics, Demographics, Cohort Analysis, Behavioral Metrics

*App Store Optimization (ASO):* Keywords, App Store Category Ranking, Views to Installs, Reviews

1. What do you thinkis **the problem of Game X?**
2. What suggestion will you give as data analyst to help Tim increase both **Performance and Revenue?**