ASSIGNMENT 2 FRONT SHEET

Qualification	**BTEC Level 5 HND Diploma in Computing**		
Unit number and title	Unit 14: Business Intelligence		
Submission date		**Date Received 1st submission**	
Re-submission Date		**Date Received 2nd submission**	
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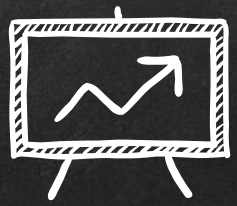
Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		Student's signature	

Grading grid

P3	P4	P5	P6	M3	M4	D3	D4

❒ **Summative Feedback:**		❒ **Resubmission Feedback:**
Grade:	**Assessor Signature:**	**Date:**
IV Signature:		



BUSINESS INTELLIGENCE

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General about BI

Definition: Business Intelligence is a set of processes, architectures, and technologies that convert raw data into meaningful information that drives profitable business actions.

BI has a direct impact on organization's strategic, tactical and operational business decisions. BI supports based on fact decision making using historical data rather than assumptions and feeling.

BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts to provide users with detailed intelligence about the nature of the business.

Real examples of how to apply BI on business

Use BI to encourage customers to exercise and create good, long-term relationships with the company

- Filter customer data to classify types of customers based on their weight and Body Mass Index (BMI).

- Customers who reach their goal BMI and will be received gifts from the company.

- This will encourage customers to be motivated and create good relationships. Moreover, make customers feel good service with the company. From there, customers will attach with the company for a long time

Use BI to filter top 10 best seller products.

– After filtering top 10 best seller products and top 10 products that have the lowest revenue, sales strategy will change.

– Company will focus on importing and selling products in the top 10 bestsellers. on the other hand, reduce import of products that sell less. In addition, products that have the lowest revenue, will boost sales by reducing product prices and using those products for events. Avoid products inventory.


Some tools and techniques for BI

Analytics is a business intelligence technique that involves the study of available data to extract meaningful insights and trends.

Predictive modeling is a BI technique that utilizes statistical techniques to create models that could be used in forecasting probabilities and trends.

The model visualization technique is used to transform the discovered facts into histograms, plots, charts and other visuals that aid in proper interpretation of the insights.

Some tools for BI

- Tableau

- SAP Business Intelligence

- Sisense

Demonstration about BI


Data set

This dataset has the survey data for the type of fitness practices that people follow.

What is in the dataset

1. Name of the person attending the survey
2. Gender of the person attending the survey
3. Age of the person attending the survey
4. How important is an exercise to you on the scale of 1 to 5
5. How do you describe your current level of fitness? - Perfect, Very good, Good, Average, Unfit
6. How often do you exercise? - Every day, 1 to 2 times a week, 2 to 3 times a week, 3 to 4 times a week, 5 to 6 times a week, never
7. What barriers, if any, prevent you from exercising more regularly? (Select all that applies) - I don't have enough time, I can't stay motivated, ill become too tired, I have an injury, I don't really enjoy exercising, I exercise regularly with no barriers
8. What forms of exercise do you currently participate in? (Select all that applies) - Walking or jogging, gym, swimming, yoga, Zumba dance, lifting weights, team sport, I don't really exercise
9. Do you exercise ? - Alone, With a friend, With a group, Within a class environment, I don't really exercise
10. What time of the day do you prefer to exercise? - Early morning, afternoon, evening
11. How long do you spend exercising per day? - 30 min, 1 hour, 2 hours, 3 hours and above, I don't really exercise
12. Would you say, you eat a healthy balanced diet? - Yes, No, Not always
13. What prevents you from eating a healthy balanced diet, if any? (Select all that applies) - Lack of time, Cost, Ease of access to fast food, Temptation, and cravings, I have a balanced diet
14. How healthy do you consider yourself on a scale of 1 to 5?
15. Have you recommended your friends to follow a fitness routine? - Yes, No
16. Have you ever purchased fitness equipment? - Yes, No
17. What motivates you to exercise? (Select all that applies) - I want to be fit, I want to increase muscle mass and strength, I want to lose weight, I want to be flexible, I want to relieve stress, I want to achieve a sporting goal, I'm not really interested in exercising.


Pre-process data

1. "timesamp" column is split into 2 columns:

– a column contains the date

– a column contains hours (does not contain GMT)

Timestamp
2019/07/03 11:48:07 PM GMT+5:30
2019/07/03 11:51:22 PM GMT+5:30

2. "Age" column is split into 2 columns

Example : 19 – 25 –> is split into 2 columns

Column 1: Min: 19

Column 2 : Max: 25

Note " Above " –> 100

Your age
19 to 25
19 to 25

3. "How often do you exercise? " column is split into 2 columns

Column 1 : How often do you exercise? (Min)

Column 2 : How often do you exercise? (Max)

Note: " ever day" = 7

"never" = 0

How often do you exercise?
Never
Never
1 to 2 times a week

4. In "How long do you spend exercising per day?" column, change hours into minutes (does not contain units).

Note : "I don't really exercise" = 0

How long do you spend exercising per day?
I don't really exercise
I don't really exercise
30 minutes

Timestamp
2019/07/03 11:48:07 PM GMT+5:30
2019/07/03 11:51:22 PM GMT+5:30

Date	Time
7/3/2019	11:48:07
7/3/2019	11:51:22

How often do you exercise?
Never
Never
1 to 2 times a week

How often do you exercise? (Min)	How often do you exercise? (Max)
0	0
0	0
1	2

How long do you spend exercising per day?
I don't really exercise
I don't really exercise
30 minutes

How long do you spend exercising per day?
0
0
30

Your age
19 to 25
19 to 25

Your age (min)	Your age (max)
19	25
19	25

```python
import csv
import datetime as dt
import re

with open('fitness-analysis.csv', mode='r', newline='') as csvfile:
    reader = csv.DictReader(csvfile)
    with open('result.csv', mode='w', newline='') as newfile:
        fieldnames = [
        'Date',
        'Time',
        'Your name',
        'Your gender',
        'Your age (min)',
        'Your age (max)',
        'How important is exercise to you?',
        'How do you describe your current level of fitness?',
        'How often do you exercise? (Min)',
        'How often do you exercise? (Max)',
        'What barriers, if any, prevent you from exercising more regularly?',
        'What form(s) of exercise do you currently participate in?',
        'Do you exercise?',
        'What time if the day do you prefer to exercise?',
        'How long do you spend exercising per day?',
        'Would you say you eat a healthy balanced diet?',
        'What prevents you from eating a healthy balanced diet, If any?',
        'How healthy do you consider yourself?',
        'Have you ever recommended your friends to follow a fitness routine?',
        'Have you ever purchased a fitness equipment?',
        'What motivates you to exercise?'
        ]
```

```
]
writer = csv.DictWriter(newfile, fieldnames=fieldnames)
writer.writeheader()
for row in reader:
    datetimeWithoutGMT = row['Timestamp'].split('GMT')
    datetimeWithoutGMT.pop()
    datetime = "".join(datetimeWithoutGMT).strip()
    datetimeFormat = dt.datetime.strptime(datetime, "%Y/%m/%d %H:%M:%S %p")
    date = datetimeFormat.strftime('%Y/%m/%d')
    time = datetimeFormat.strftime('%H:%M:%S')
    age = row['Your age']
    ageMin = None
    ageMax = 100
    reAge = re.search('^([0-9]+) to ([0-9]+)$', age)
    if (reAge):
        result = re.findall('^([0-9]+) to ([0-9]+)$', age)[0]
        ageMin = result[0]
        ageMax = result[-1]
    else:
        result = re.findall('^([0-9]+) and above$', age)[0]
        ageMin = result
    often = row['How often do you exercise?']
    oftenMin = 0 if often == 'Never' else 7 if often == 'Everyday' else re.findall('^([0-9]+) to ([0-9]+) times a week$', often)[0][0]
    oftenMax = 0 if often == 'Never' else 7 if often == 'Everyday' else re.findall('^([0-9]+) to ([0-9]+) times a week$', often)[0][-1]
    exercising = row['How long do you spend exercising per day?']
    exercisingTime = 0
    if (re.search('^([0-9]+) (.+)+$', exercising)):
        result = re.findall('^([0-9]+) (.+)+$', exercising)[0]
        if (result[-1] == 'minutes'):
            exercisingTime = result[0]
        elif (result[-1] == 'hour' or result[-1] == 'hours'):
            exercisingTime = int(result[0]) * 60
```

```
        result = re.findall('^([0-9]+) (.+)+$', exercising)[0]
        if (result[-1] == 'minutes'):
            exercisingTime = result[0]
        elif (result[-1] == 'hour' or result[-1] == 'hours'):
            exercisingTime = int(result[0]) * 60
    writer.writerow({
    'Date': date,
    'Time': time,
    'Your name': row['Your name'],
    'Your gender': row['Your gender'],
    'Your age (min)': ageMin,
    'Your age (max)': ageMax,
    'How important is exercise to you?': row['How important is exercise to you?'],
    'How do you describe your current level of fitness?': row['How do you describe your current level of fitness?'],
    'How often do you exercise? (Min)': oftenMin,
    'How often do you exercise? (Max)': oftenMax,
    'What barriers, if any, prevent you from exercising more regularly?': row['What barriers, if any, prevent you from exercising more regularly?'],
    'What form(s) of exercise do you currently participate in?': row['What form(s) of exercise do you currently participate in?'],
    'Do you exercise?': row['Do you exercise?'],
    'What time if the day do you prefer to exercise?': row['What time if the day do you prefer to exercise?'],
    'How long do you spend exercising per day?': exercisingTime,
    'Would you say you eat a healthy balanced diet?': row['Would you say you eat a healthy balanced diet?'],
    'What prevents you from eating a healthy balanced diet, If any?': row['What prevents you from eating a healthy balanced diet, If any?'],
    'How healthy do you consider yourself?': row['How healthy do you consider yourself?'],
    'Have you ever recommended your friends to follow a fitness routine?': row['Have you ever recommended your friends to follow a fitness routine?'],
    'Have you ever purchased a fitness equipment?': row['Have you ever purchased a fitness equipment?'],
    'What motivates you to exercise?': row['What motivates you to exercise?']
    })
```

Design Dashboards 1

Chart 1 : Personal Information

Purpose: Display customer personal information.

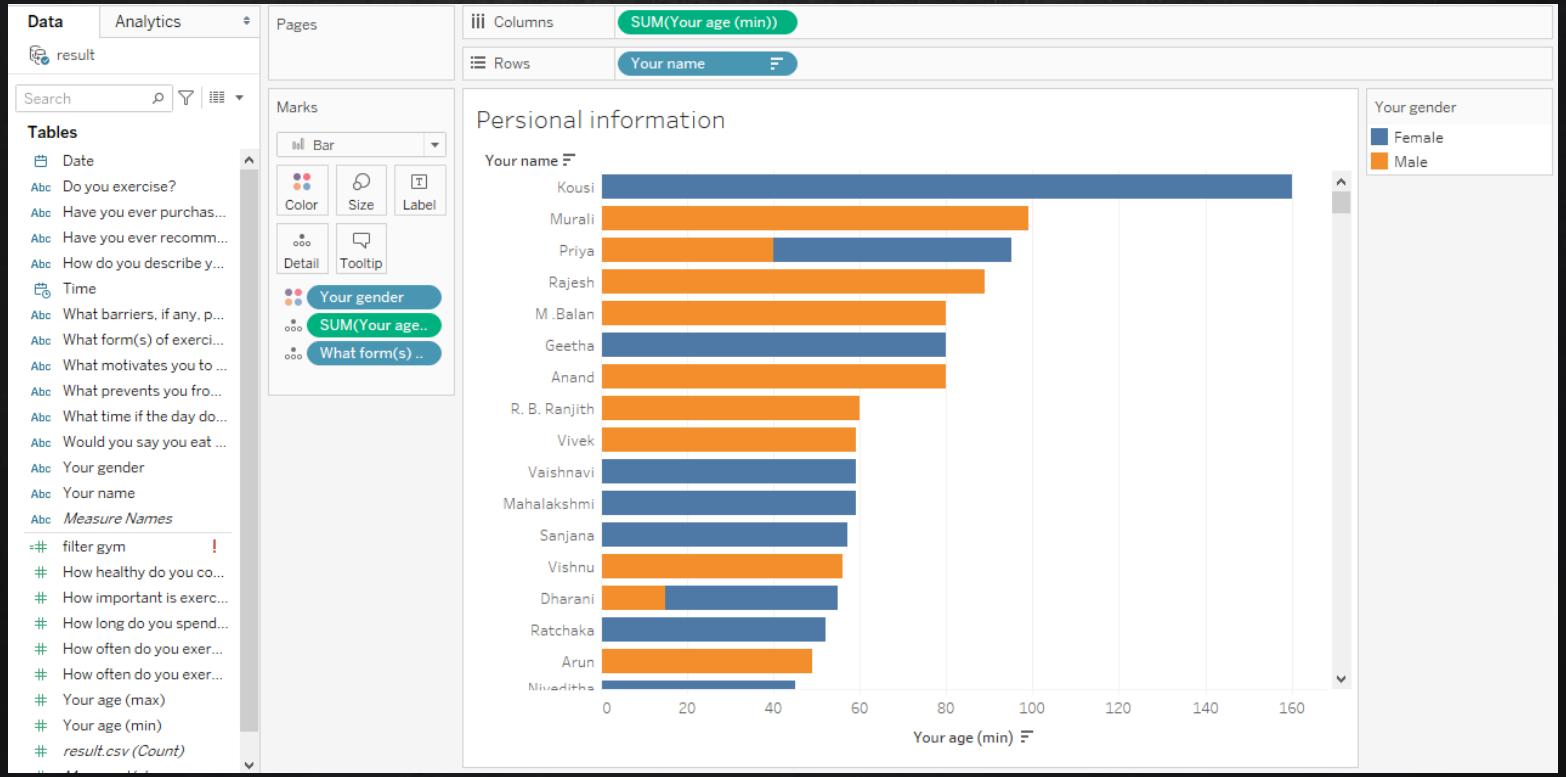


Chart 2 : Health status

Purpose: Display health status of customers

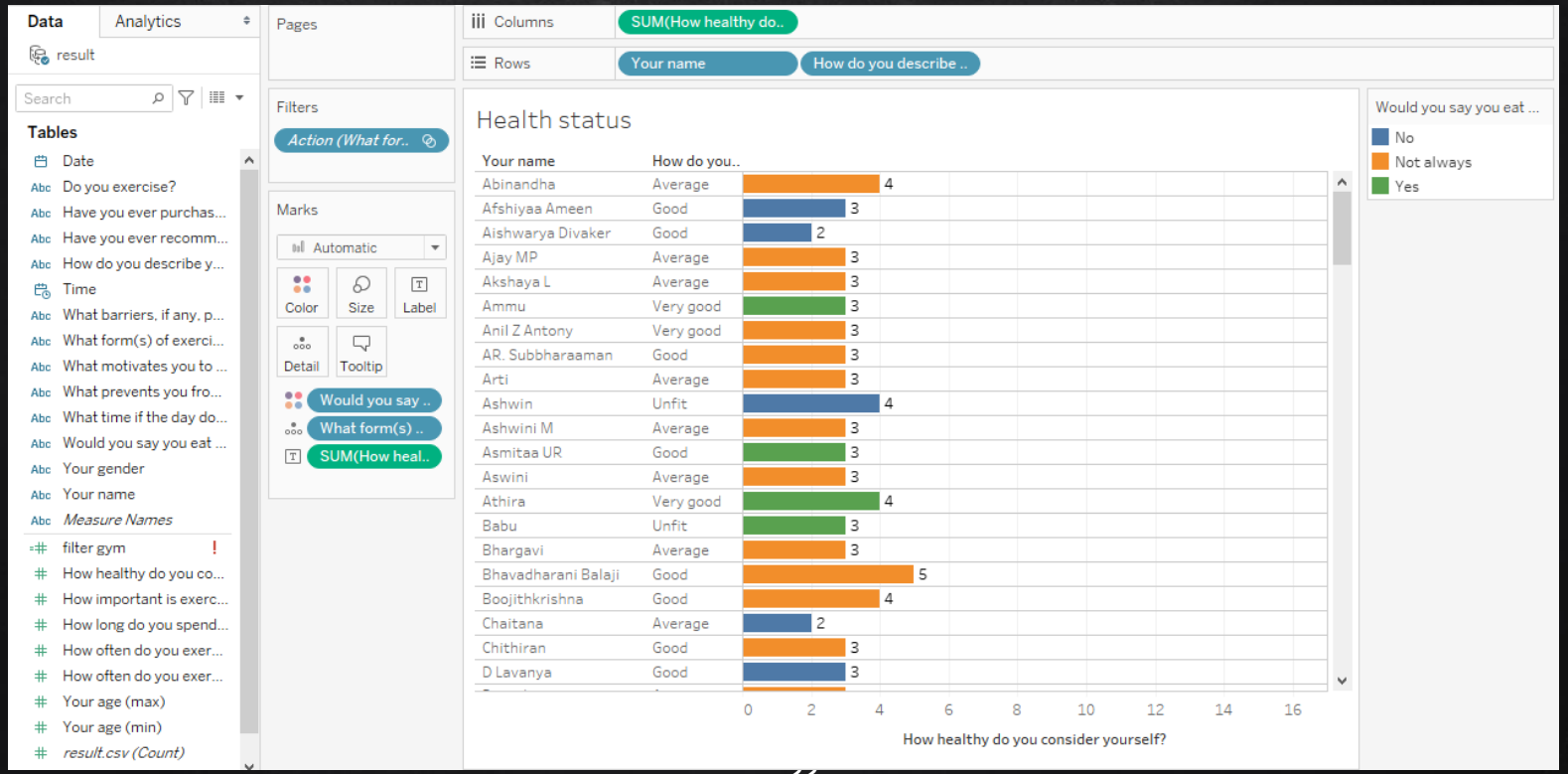
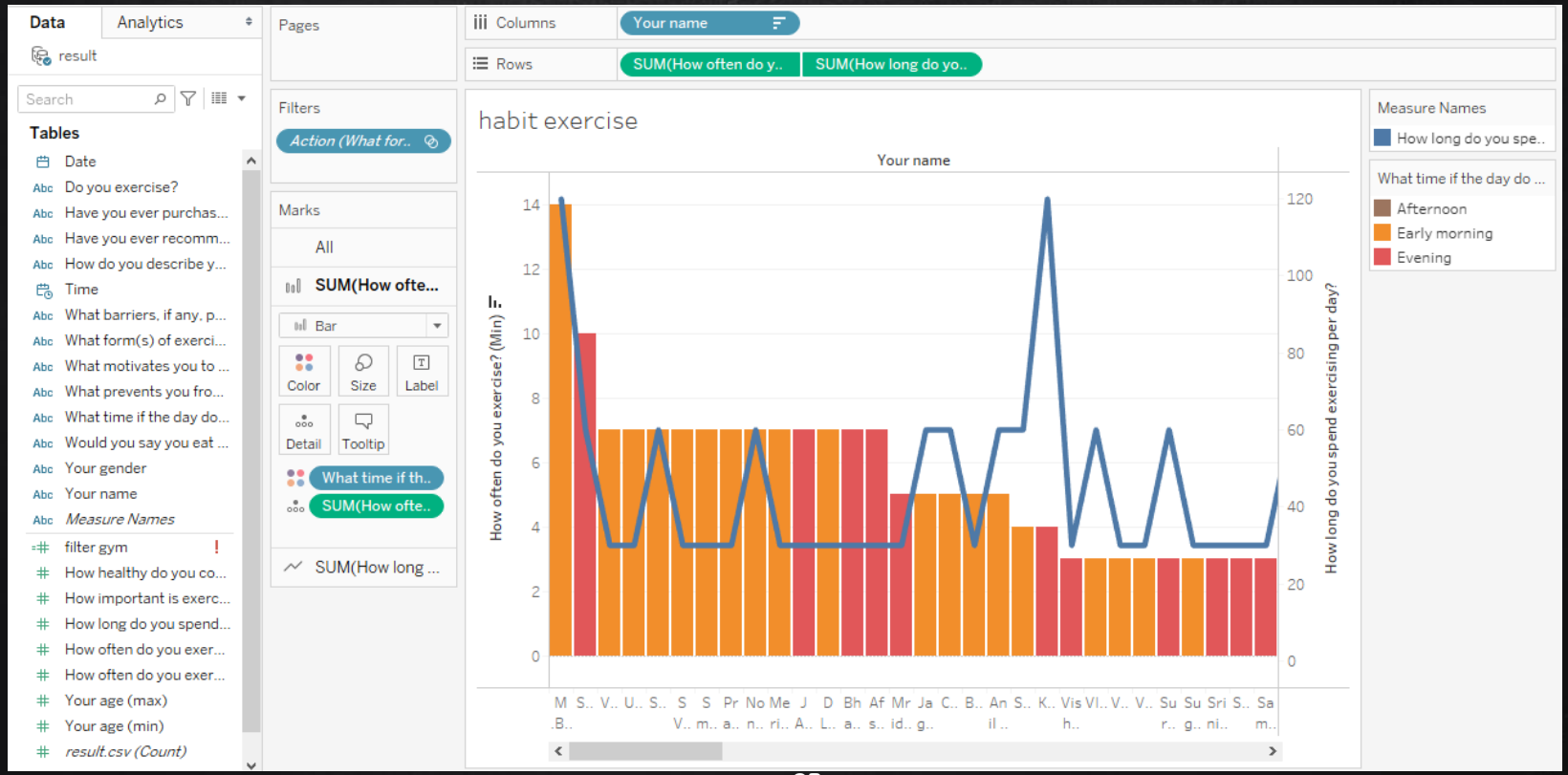


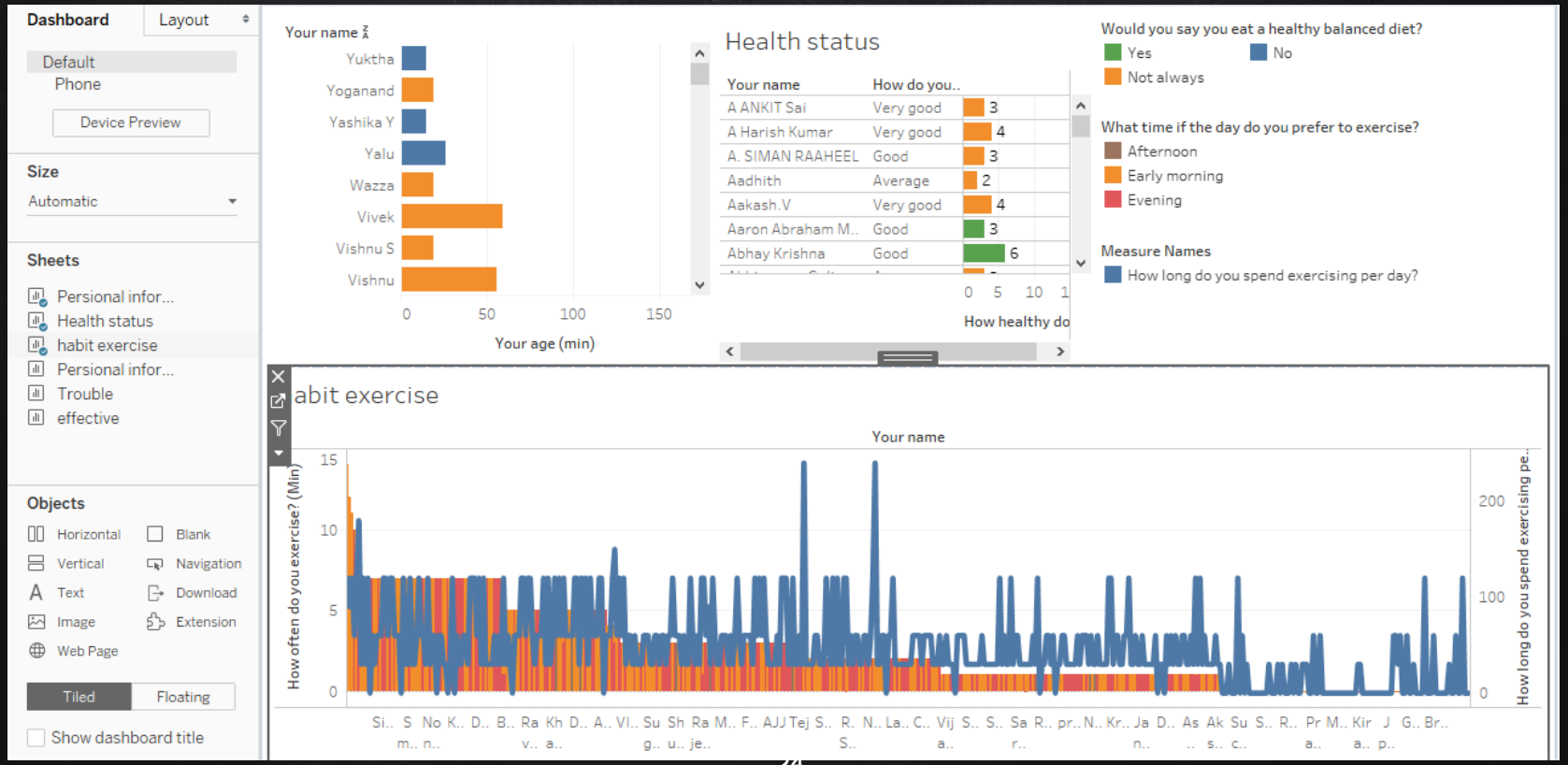
Chart 3: Exercise habit

Purpose: Display exercise habits of customers



Dashboards : Analyze personal data

Purpose: Research the behavior and habits of customers when they do exercise



Design Dashboards 2

Chart 1 : Personal Information

Purpose: Display customer personal information.

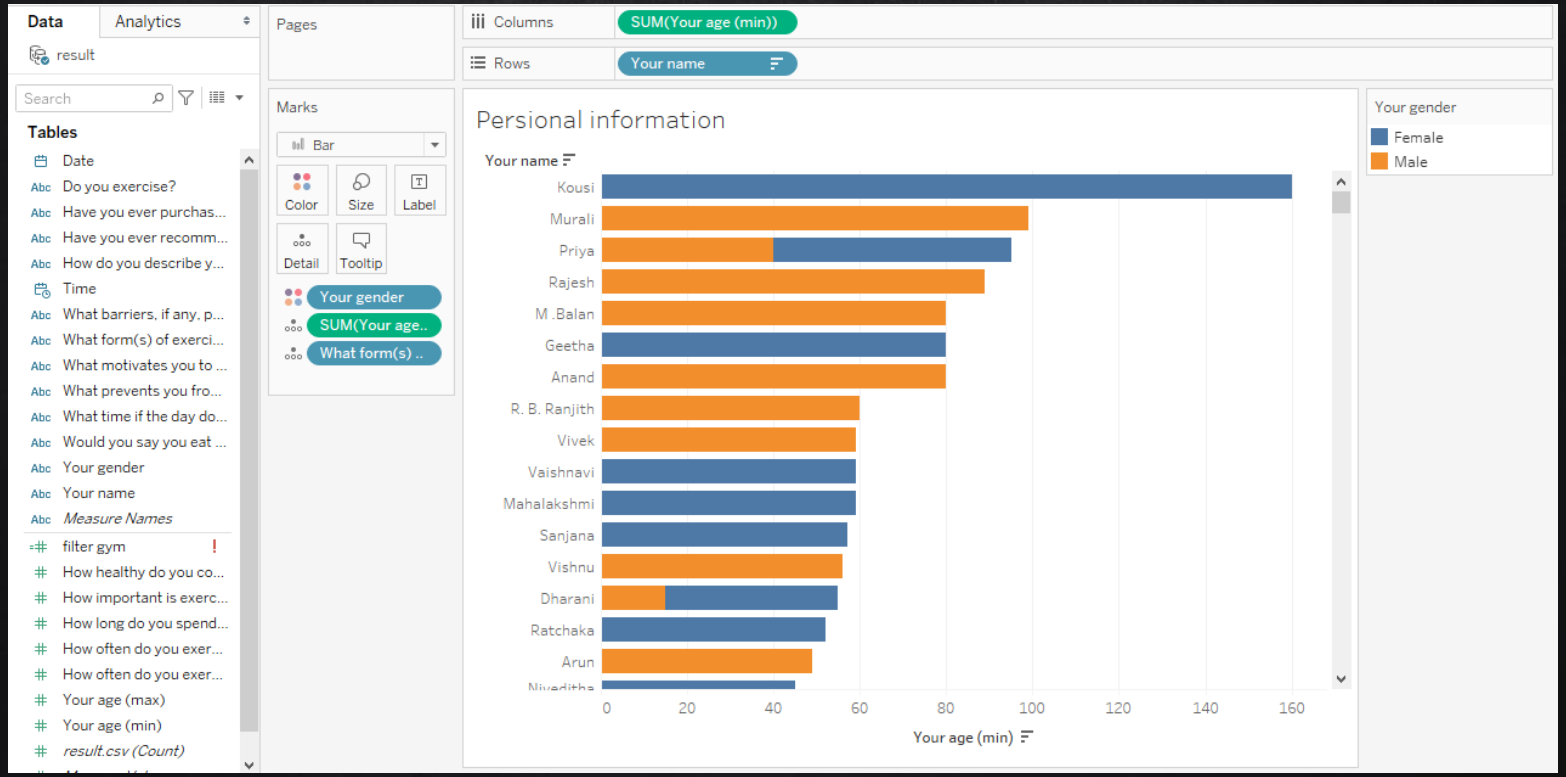


Chart 1 : Problems of customer

Purpose: Display problems of customer

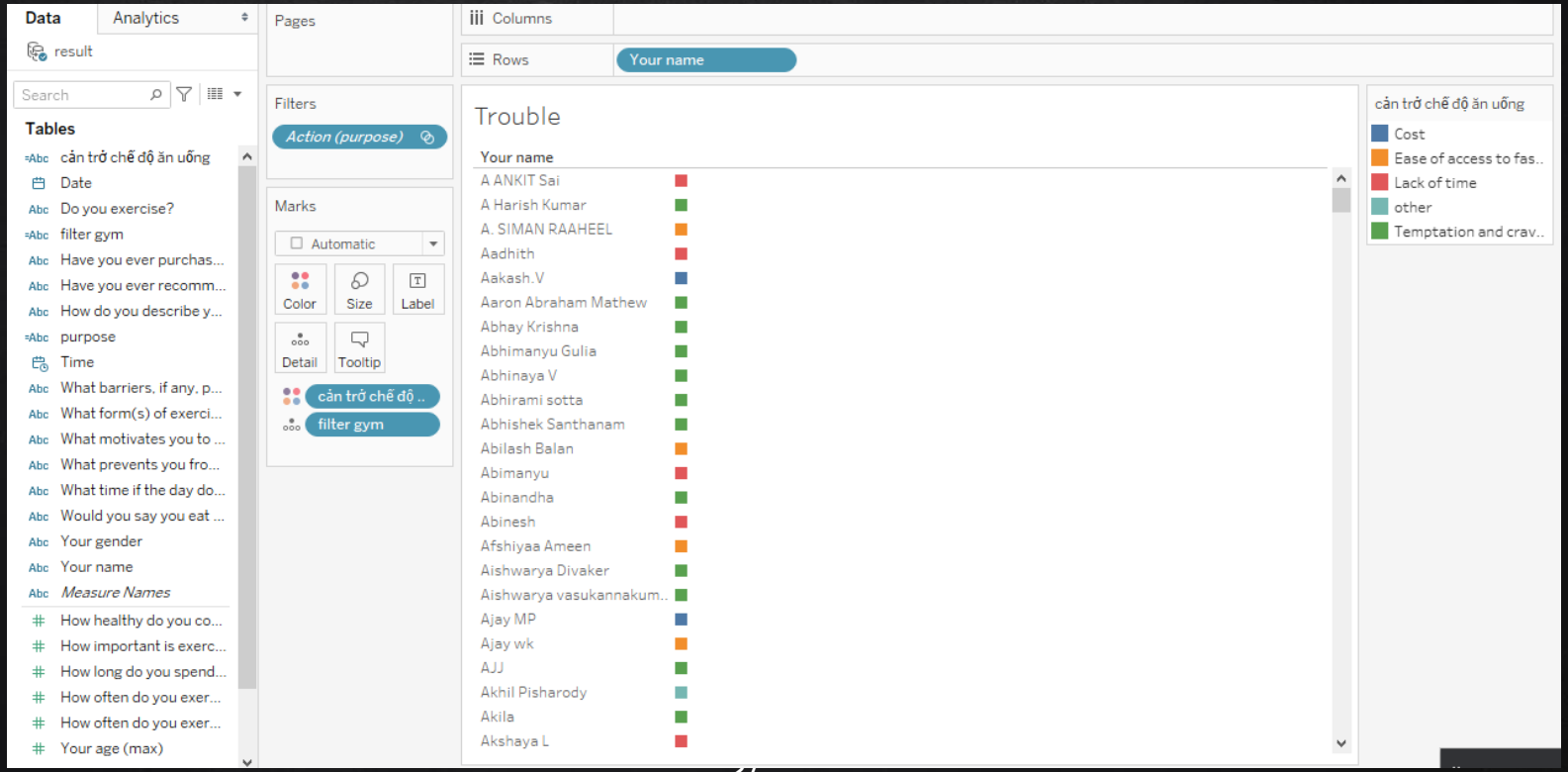
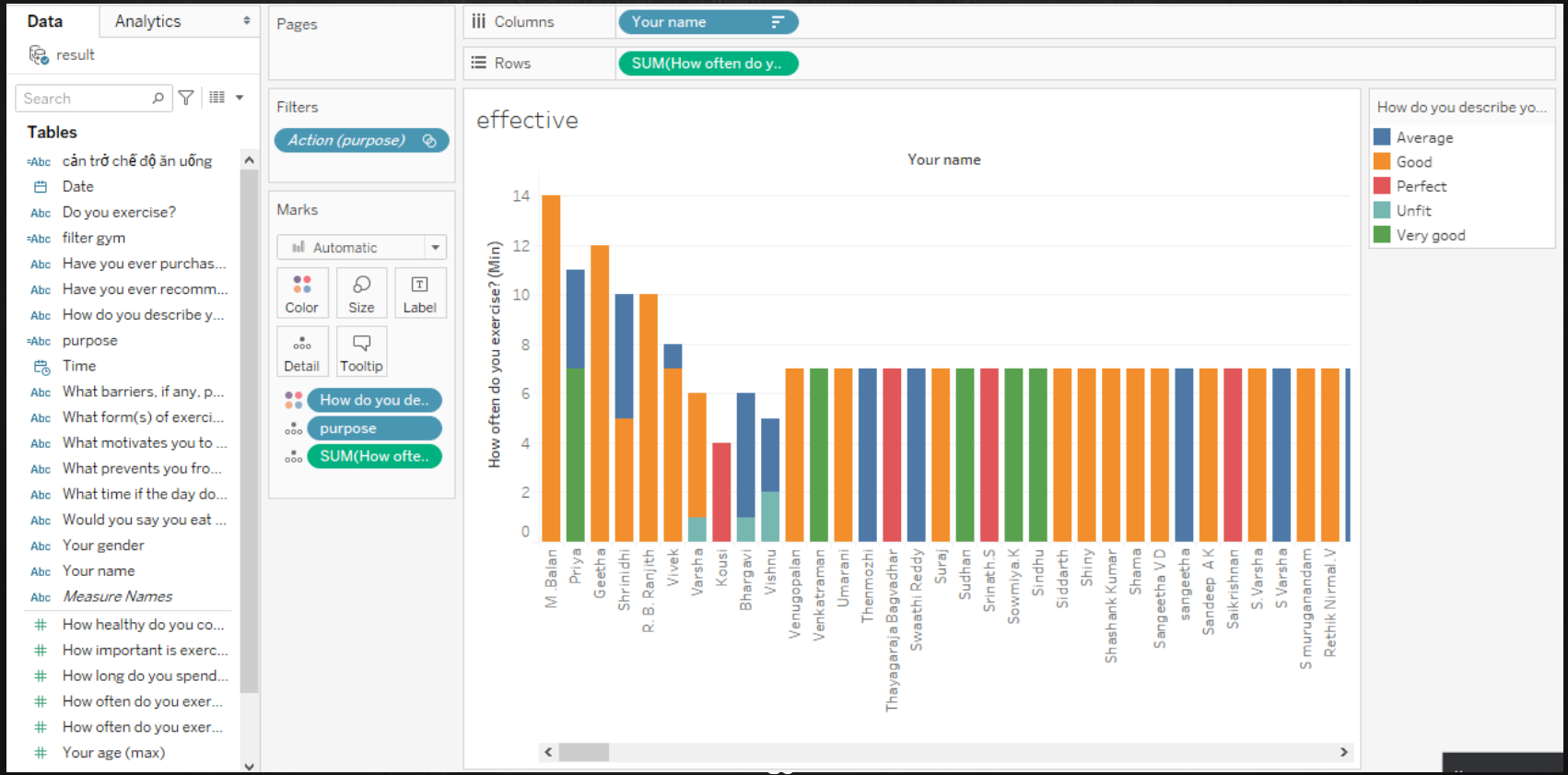


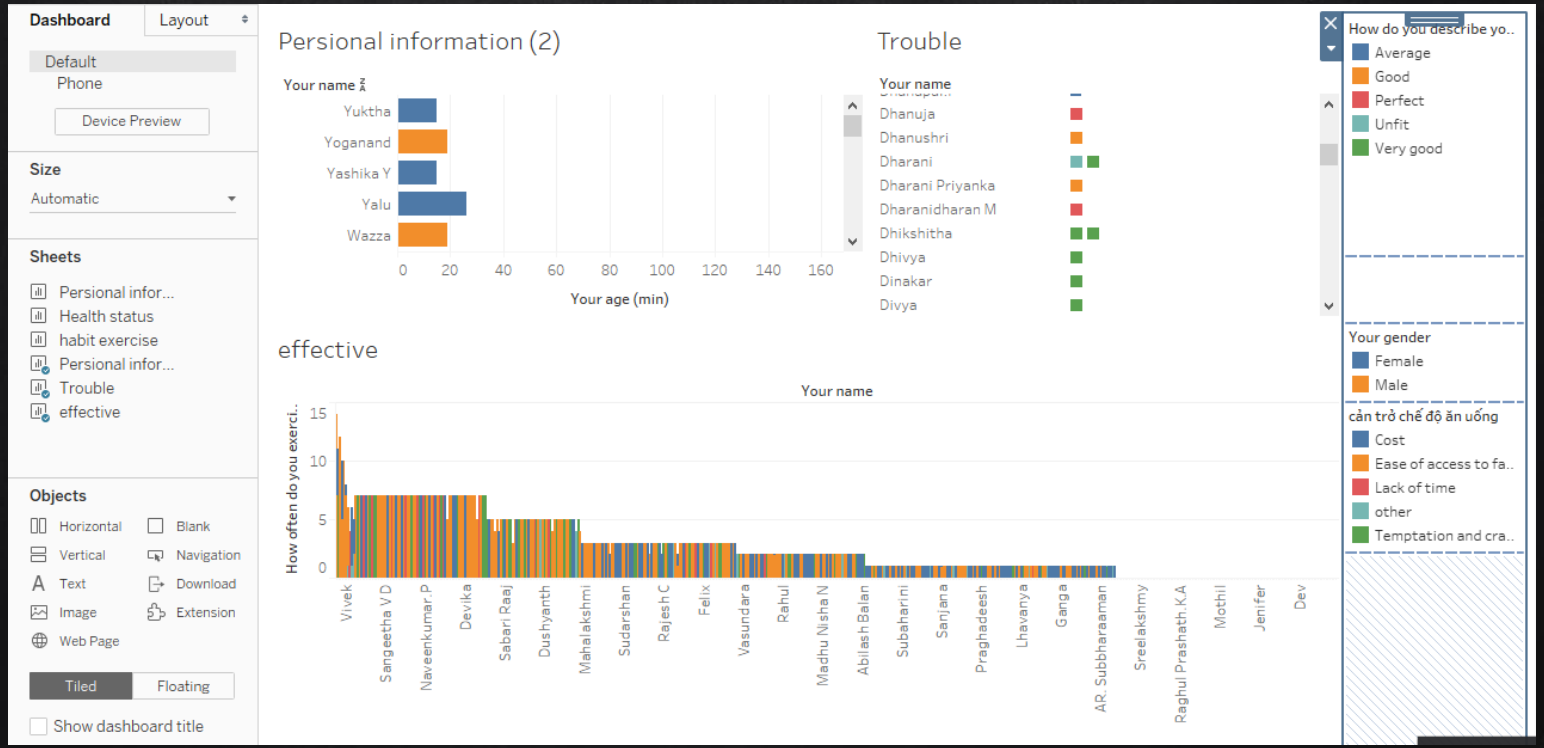
Chart 3: Time of doing exercise and effectiveness

Purpose: Display exercise habits of customers



Dashboards : Problems of customer

Purpose: Find out what problems are interfering with a customer's fitness goals



Point of View

Excel and Tableau help Filter results based on form of exercise to show health status and exercise habits. filtering will find the trend of form of exercise. From that trend, the company should consider whether to open more services for these forms of exercise.

Thanks for watching!

Table of Contents

Table of Figures :

I. Review feedbacks

To take feedbacks and comments from viewers, I create Google Form to survey them.

Base on the data that was taken from Survey Online (Google form), I have analysis:

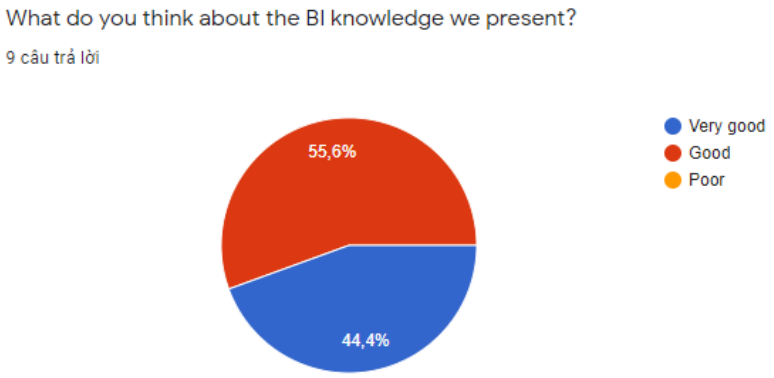


Figure 1: Question 1

55.6% of people think the BI knowledge we present is very good and 44.4% think it is good.

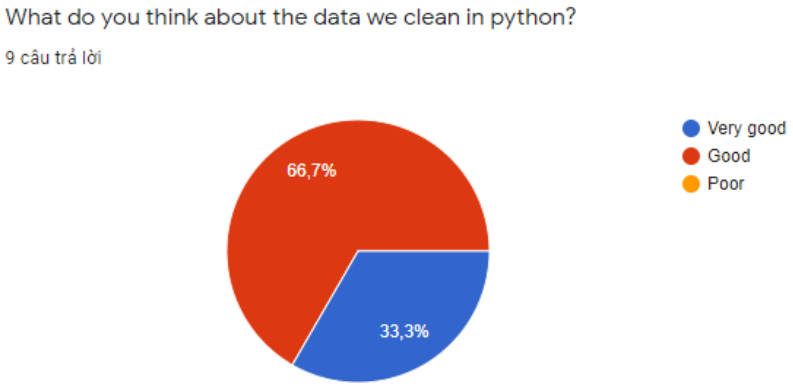


Figure 2:Question 2

33.3% of people think the data we clean up in python is very good and 66.7% think it is good.

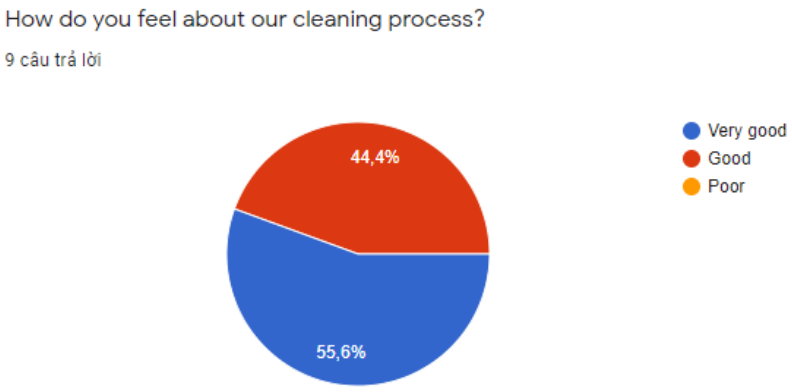


Figure 3:Question 3

55.6% of people think our cleaning process is very good and 44.4% think it is good.

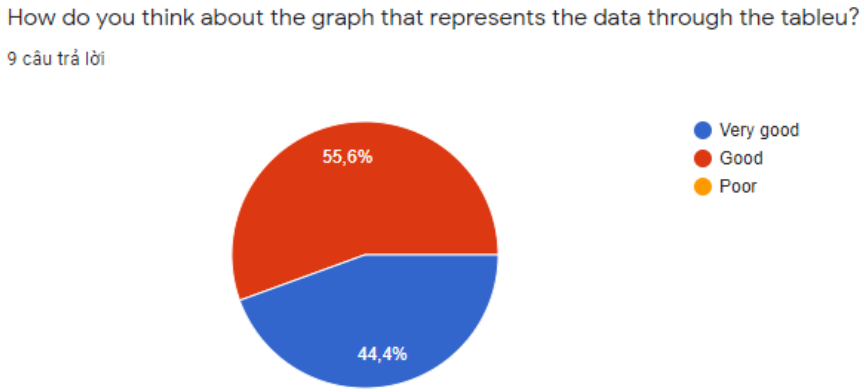


Figure 4:Question 4

44.4% of people think that the graph that represents the data through the tableu is very good and 55.6% think it is good.

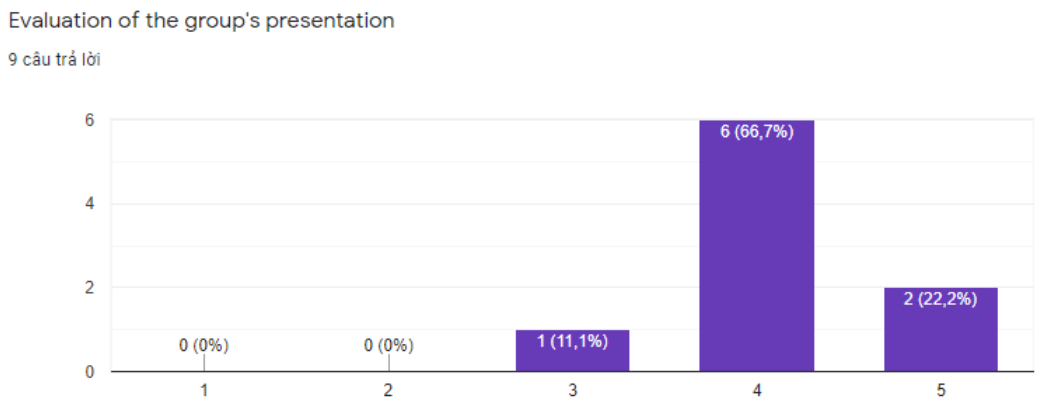


Figure 5: Question 5

11.1% rated the group presentation as 3/5, 66.7% rated the group presentation as 4/5, and 22.2% rated the group presentation as 5/5.

Through surveys we found we gave a successful presentation.

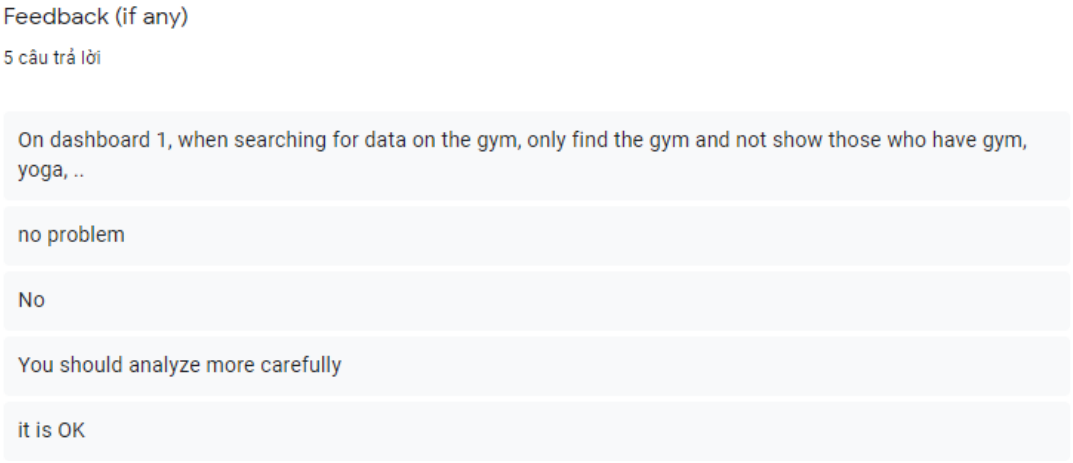


Figure 6:feedbacks

Problems:

On dashboard 1, when searching data about gym, only gym-only people are found, and not those who have exercised, yoga, etc.

There are some data that have not been applied yet, so they need to be included in the table for further analysis.

Solution problems:

We will use filter method in column (What form (s) of exercise do you currently participate in?) with the word gym in the answer all print out.

We will research more on this issue.

Improvements in the future:

- We will find more relationships between data to be able to open a new fitness related to increase revenue.

- We add questions about the customer's buying frequency so that we can find potential customers.

- We will create more charts of best-selling products to increase the revenue of best-selling products

II. The legal issues

Corporate legal departments have reclaimed from their law firms control of legal matters. As legal departments institute increasingly creative alternative fee arrangements to predict and control costs, they need objective data in order to negotiate rates. On the flip side of the coin, so too must law firms tap into actionable BI in order to assess factors such as trends in their historical billing rates, hours billed, etc. While legal departments may hold the reins in this relationship, firms must still engage in rational calculus to determine at which levels of service and compensation they can afford to be engaged, if at all.

Actionable BI leads to strategic decisions. Legal departments are better able to assess and manage risky matters. They can compare how effective individual attorneys are compared to colleagues in the same firm, as well as on an inter-firm basis. To the most effective go future spoils.

Legal departments have found that putting an e-billing and matter management system in place can save between five to 15 percent in legal fees solely by pre-screening invoices for accuracy and compliance with performance guidelines. As they learn to capitalize on the data-driven business intelligence solutions, legal departments have been able to drive savings of as much as 50 percent by making fully informed decisions data-driven outcomes.

(Kerschberg, 2011)

General Counsel or chief legal officers increasingly play a strategic role in advising board decisions, proactively managing information governance and compliance, and managing legal risk. As in-house legal teams assume greater responsibility for their dockets and remove that authority from their outside counsel, they need to find faster ways to improve data transparency to support decisions. Just as their own corporations implement innovative IT solutions to manage business more effectively, many chief legal officers are taking on the role of change agent, innovating with technology solutions in legal operations.

The flexible, high-performance legal operations they envision require a data-driven approach to decision-making, increasing demand for more complete solutions from law firms and other service providers. Corporate legal goals include greater use of technology tools, collection and analysis of management metrics, and project management training. (CHI, 2017)

III. References

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