Students' Mental Health Analysis by Shromana Majumder

Mental health is crucial for students and graduates because it directly impacts their overall well-being, academic performance, and future success. When students are mentally healthy, they can concentrate better, retain information more effectively, and have improved problem-solving skills. Students with good mental health are more likely to set and achieve goals, manage time effectively, and maintain a healthy work-life balance.

Dataset:

This Data set was collected by a survey conducted by Google forms from University student in order to examine their current academic situation and mental health.

Tools Used:

Data Preprocessing: SQL
Data visualization; Python

Load the Dataset

-- Create Database

```
CREATE DATABASE mental;
USE mental;
```

-- Table

```
SELECT * FROM studentmental;
```

Timestamp	Choose your gender	Age	What is your course?	Your current year of Study	What is your CGPA?	Marital status
8/7/2020 12:02	Female	18	Engineering	year 1	3.00 - 3.49	No
8/7/2020 12:04	Male	21	Islamic education	year 2	3.00 - 3.49	No
8/7/2020 12:05	Male	19	BIT	Year 1	3.00 - 3.49	No
8/7/2020 12:06	Female	22	Laws	year 3	3.00 - 3.49	Yes
8/7/2020 12:13	Male	23	Mathemathics	year 4	3.00 - 3.49	No
8/7/2020 12:31	Male	19	Engineering	Year 2	3.50 - 4.00	No
8/7/2020 12:32	Female	23	Pendidikan islam	year 2	3.50 - 4.00	Yes

Do you have Depression?	Do you have Anxiety?	Do you have Panic attack?	Did you seek any specialist for a treatment?
Yes	No	Yes	No
No	Yes	No	No
Yes	Yes	Yes	No
Yes	No	No	No
No	No	No	No
No	No	Yes	No
Yes	No	Yes	No

- **11 Columns.**

--Rename Columns

```
ALTER TABLE `mental`.`studentmental`
RENAME TO  `mental`.`student_mh` ;
```

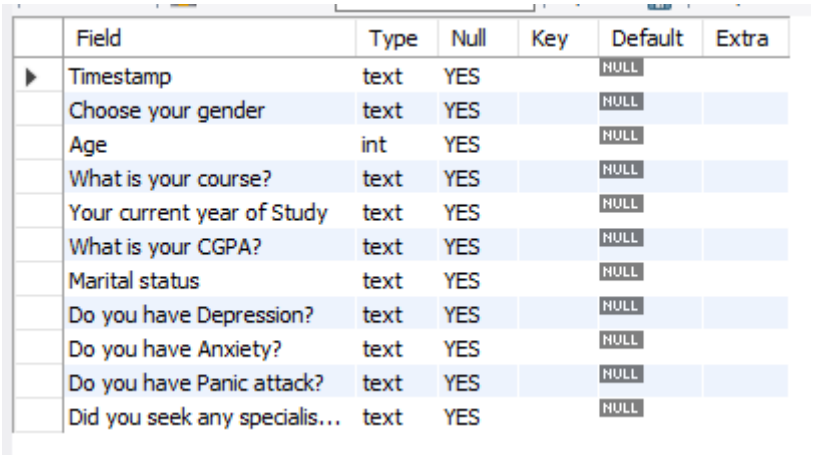
-- Tables

```
SELECT * FROM student_mh;
```

Data Preprocessing :

-- Data types

```
describe student_mh;
```



Field	Type	Null	Key	Default	Extra
Timestamp	text	YES		NULL	
Choose your gender	text	YES		NULL	
Age	int	YES		NULL	
What is your course?	text	YES		NULL	
Your current year of Study	text	YES		NULL	
What is your CGPA?	text	YES		NULL	
Marital status	text	YES		NULL	
Do you have Depression?	text	YES		NULL	
Do you have Anxiety?	text	YES		NULL	
Do you have Panic attack?	text	YES		NULL	
Did you seek any specialis...	text	YES		NULL	

-- Change of column names

```
alter table student_mh
rename column `Choose your gender` to gender,
rename column `What is your course?` to course,
rename column `Your current year of Study` to study_year,
rename column `What is your CGPA?` to CGPA,
rename column `Marital status` to married,
rename column `Do you have Depression?` to depressed,
rename column `Do you have Anxiety?` to anxiety,
rename column `Do you have Panic attack?` to panic_attacks,
rename column `Did you seek any specialist for a treatment?` to lfor_treatment;
```

-- Data formatting
Timestamp

```
alter table student_mh
add column timestamp_f timestamp;

update student_mh
set timestamp_f = str_to_date(Timestamp, '%d/%m/%Y %H:%i:%s');
```

Grade

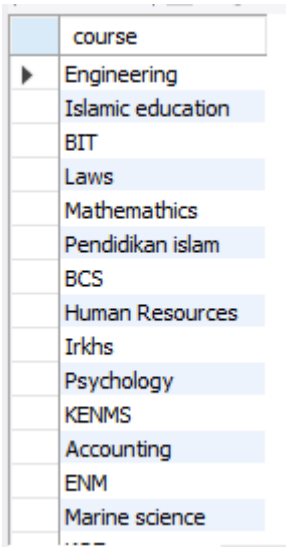
```
alter table student_mh
add column grade float;

update student_mh
set grade = (substring_index(CGPA, ' - ', 1) + substring_index(CGPA, ' - ', -1)) /
2;
```

Study year

```
alter table student_mh
add column study_year_f int;

update student_mh
set study_year_f = (substring_index(study_year, ' ', -1));
```

What profession interviewers studying:

```
select distinct course
from student_mh;
```



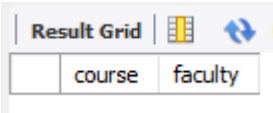
course
Engineering
Islamic education
BIT
Laws
Mathemathics
Pendidikan islam
BCS
Human Resources
Irkhs
Psychology
KENMS
Accounting
ENM
Marine science

Adding new column:

```
alter table student_mh
add column faculty varchar(50);

UPDATE student_mh
SET faculty = 'RCEP'
WHERE course IN ('KIRKHS', 'Irkhs', 'Islamic education','Pendidikan islam',
'Human Resources', 'Psychology', 'Usuluddin ', 'Malcom', 'Human Sciences ',
'Communication ', 'Pendidikan Islam ');

UPDATE student_mh
SET faculty = 'IT'
WHERE course IN ('BIT', 'BCS', 'IT', 'CTS');

UPDATE student_mh
SET faculty = 'Law'
WHERE course IN ('Laws', 'Law', 'Fiqh fatwa ', 'Fiqh');

UPDATE student_mh
SET faculty = 'Faculty of Medicine'
WHERE course IN ('Biomedical science', 'MHSC', 'Kop', 'Biotechnology', 'Diploma
Nursing', 'Radiography', 'Nursing ');

UPDATE student_mh
SET faculty = 'Economics and Management'
WHERE course IN ('Mathemathics', 'KENMS', 'Accounting ', 'Banking Studies',
'Business Administration', 'Econs');

UPDATE student_mh
SET faculty = 'Environment'
WHERE course IN ('ENM', 'Marine science');

UPDATE student_mh
SET faculty = 'Linguistics'
WHERE course IN ('TAASL', 'BENL', 'DIPLOMA TESL');

UPDATE student_mh
SET faculty = 'Art'
WHERE course IN ('ALA');

UPDATE student_mh
SET faculty = 'Engineering'
WHERE course IN ('KOE', 'Engine', 'engin', 'Engineering');
```

Checking Null Values in Course and Faculty:

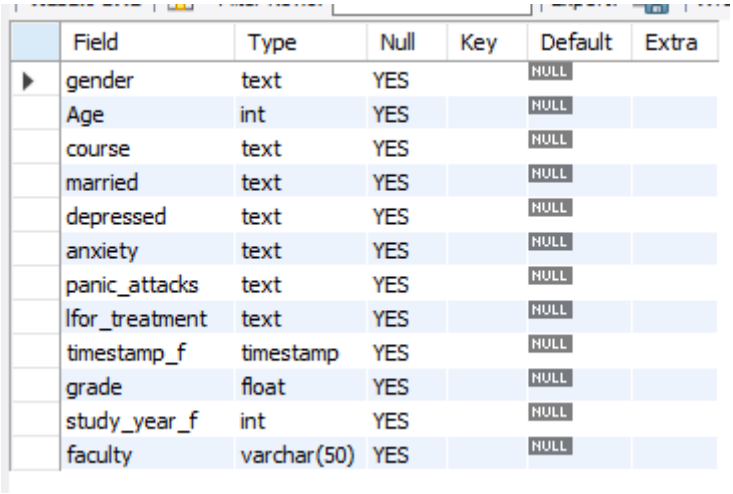
```
select course, faculty
from student_mh
where faculty is null;
```



	course	faculty

Dropping Columns:

```
alter table student_mh
drop column Timestamp;

alter table student_mh
drop column study_year;

alter table student_mh
drop column CGPA;

describe student_mh;
```



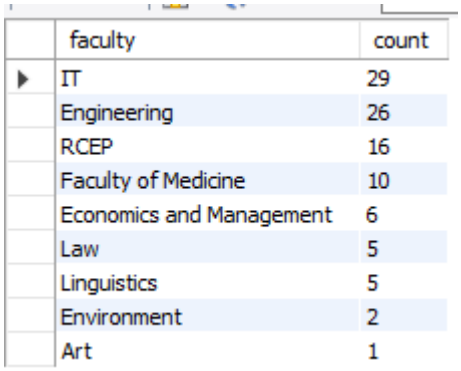
Field	Type	Null	Key	Default	Extra
gender	text	YES		NULL	
Age	int	YES		NULL	
course	text	YES		NULL	
married	text	YES		NULL	
depressed	text	YES		NULL	
anxiety	text	YES		NULL	
panic_attacks	text	YES		NULL	
lfor_treatment	text	YES		NULL	
timestamp_f	timestamp	YES		NULL	
grade	float	YES		NULL	
study_year_f	int	YES		NULL	
faculty	varchar(50)	YES		NULL	

- **Dataset Before Analysis.**

Data Analysis:

Count interviewed by faculty:

```
select faculty, count(*) as count
from student_mh
group by faculty
order by count desc;
```

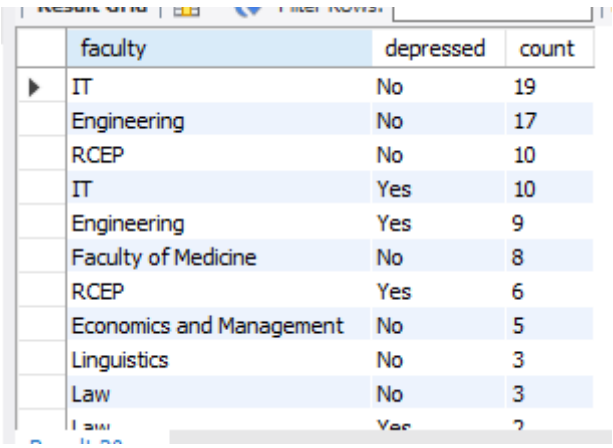


faculty	count
IT	29
Engineering	26
RCEP	16
Faculty of Medicine	10
Economics and Management	6
Law	5
Linguistics	5
Environment	2
Art	1

- **Most of the interviewed are studying in : Internet Technology, Engineering or RCEP**

Depression factor among faculties:

```
select faculty, depressed, count(*) as count
from student_mh
group by faculty, depressed
order by count desc;
```



faculty	depressed	count
IT	No	19
Engineering	No	17
RCEP	No	10
IT	Yes	10
Engineering	Yes	9
Faculty of Medicine	No	8
RCEP	Yes	6
Economics and Management	No	5
Linguistics	No	3
Law	No	3
Law	Yes	2

- **Almost in every faculty interviewed are depressed**

Depressed by year of study and faculty:

```
select study_year_f, faculty, depressed, count(*) as count
from student_mh
group by faculty, study_year_f, depressed
order by study_year_f,count desc;
```

study_year_f	faculty	depressed	count
1	IT	No	10
1	Engineering	No	9
1	IT	Yes	5
1	RCEP	No	4
1	Engineering	Yes	3
1	RCEP	Yes	3
1	Faculty of Medicine	No	3
1	Economics and Management	Yes	1
1	Linguistics	Yes	1
1	Economics and Management	No	1
1	Art	Yes	1
1	Linguistics	No	1
2	RCEP	No	4
2	Engineering	No	4

- **At the last year percentage of depressed ones fall down to minimum.**

Depression, grades and year of study :

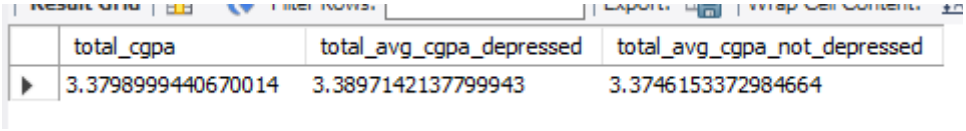
```
select depressed, study_year_f, avg(grade) over (partition by study_year_f) as
year_cgpa, count(*) as count
from student_mh
group by depressed, study_year_f, grade, study_year_f
order by study_year_f, depressed;
```

depressed	study_year_f	year_cgpa	count
No	1	2.853571363857814	18
No	1	2.853571363857814	8
No	1	2.853571363857814	1
No	1	2.853571363857814	1
Yes	1	2.853571363857814	7
Yes	1	2.853571363857814	2
Yes	1	2.853571363857814	5
No	2	3.103571346827916	8
No	2	3.103571346827916	6
No	2	3.103571346827916	1
No	2	3.103571346827916	1
Yes	2	3.103571346827916	4
Yes	2	3.103571346827916	5
Yes	2	3.103571346827916	1

- **Generaly, average grades are growing with year of study;**
- **Depressed ones have slightly better grades**

Average grades, average grades among those, who are depressed and not:

```
select
  (select avg(grade) from student_mh) as total_cgpa,
  (select avg(grade) from student_mh where depressed = 'Yes') as
total_avg_cgpa_depressed,
  (select avg(grade) from student_mh where depressed = 'No') as
total_avg_cgpa_not_depressed;
```

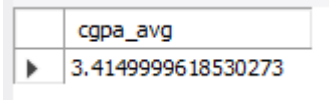


total_cgpa	total_avg_cgpa_depressed	total_avg_cgpa_not_depressed
3.3798999440670014	3.3897142137799943	3.3746153372984664

- **There is unsignificant difference in total by grades among those, who are depressed and who are not.**

Grades of those, who are depressed, but looking or having mental treatment:

```
with cte as (
   select lfor_treatment, avg(grade) as cgpa_avg
   from student_mh
   where depressed = 'Yes'
   group by lfor_treatment
)
select cgpa_avg
from cte
where lfor_treatment = 'Yes'
group by lfor_treatment;
```

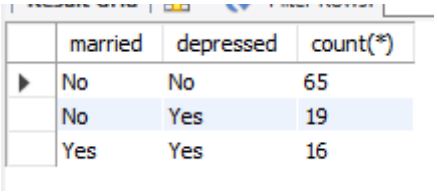


cgpa_avg
3.4149999618530273

- **There is slight improve among those, who are depressed and looking for treatment**

Depression amd marital status:

```
select married, depressed, count(*)
from student_mh
group by married, depressed
order by married;
```

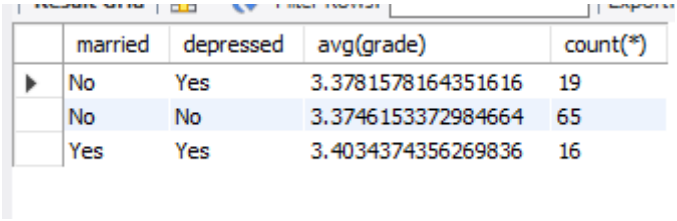


	married	depressed	count(*)
▶	No	No	65
	No	Yes	19
	Yes	Yes	16

- **All of those, who married are depressed.**

Grades by marital status divided by depressed ones and who are not:

```
select married, depressed, avg(grade), count(*)
from student_mh
group by married, depressed;
```

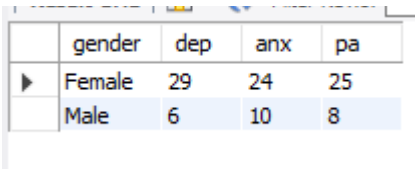


	married	depressed	avg(grade)	count(*)
▶	No	Yes	3.3781578164351616	19
	No	No	3.3746153372984664	65
	Yes	Yes	3.4034374356269836	16

- **Depressed are generaly have better grades, but there is a very small dispersion in average grades between those, who are not depressed. Married ones have slightly better grades.**

Mental Health Status by gender:

```
select gender,
   count(case when depressed = 'Yes' then 1 end) as  dep,
   count(case when anxiety = 'Yes' then 1 end)   as  anx,
   count(case when panic_attacks = 'Yes' then 1 end) pa
from student_mh
group by gender;
```



	gender	dep	anx	pa
▶	Female	29	24	25
	Male	6	10	8

- **Female students have feel depressed that any other mental problems;**
- **Male students feel more anxious.**

Panick attacks, anxiety and depression:

```
select
   (select avg(grade) from student_mh where panic_attacks = 'Yes' and anxiety =
'Yes' and depressed = 'Yes') as depanpa_yes,
   (select avg(grade) from student_mh where panic_attacks = 'No'and anxiety =
'No' and depressed = 'No') as depanpa_no;
```

	depanpa_yes	depanpa_no
▶	3.447499942779541	3.3168055017789206

- **There is about ~ 6% differenes in grades among those, who have wast mental issues vs those, who doesn't have any.**

Average age vs average age who are depressed and who are not:

```
select
 (select avg(Age) from student_mh where Age is not null) as avg_age,
 (select avg(Age) from student_mh where depressed = 'Yes' and Age is not null)
as avg_dep_age,
 (select avg(Age) from student_mh where depressed = 'No' and Age is not null)
as avg_notdep_age;
```

	avg_age	avg_dep_age	avg_notdep_age
▶	20.5300	20.2857	20.6615

Age and depression:

```
select Age, depressed, count(*) as count
from student_mh
where Age is not null
group by Age, depressed
order by Age, count desc;
```

	Age	depressed	count
▶	18	No	21
	18	Yes	11
	19	No	12
	19	Yes	9
	20	No	3
	20	Yes	3
	21	No	3
	22	Yes	1
	22	No	1
	23	No	8
	23	Yes	5
	24	No	17
	24	Yes	6

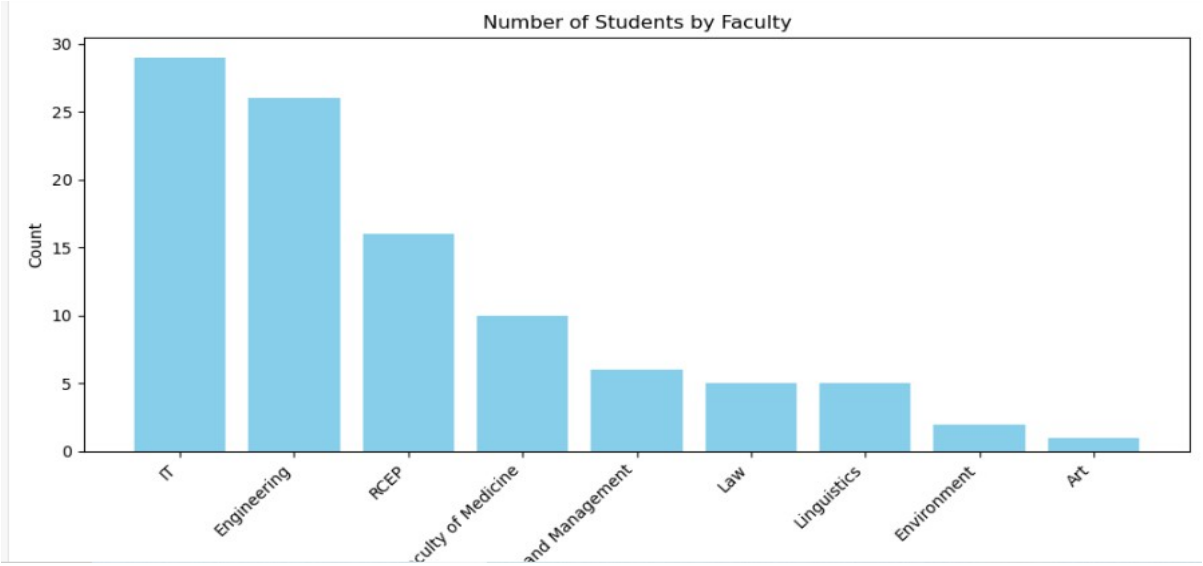
Conclusions:

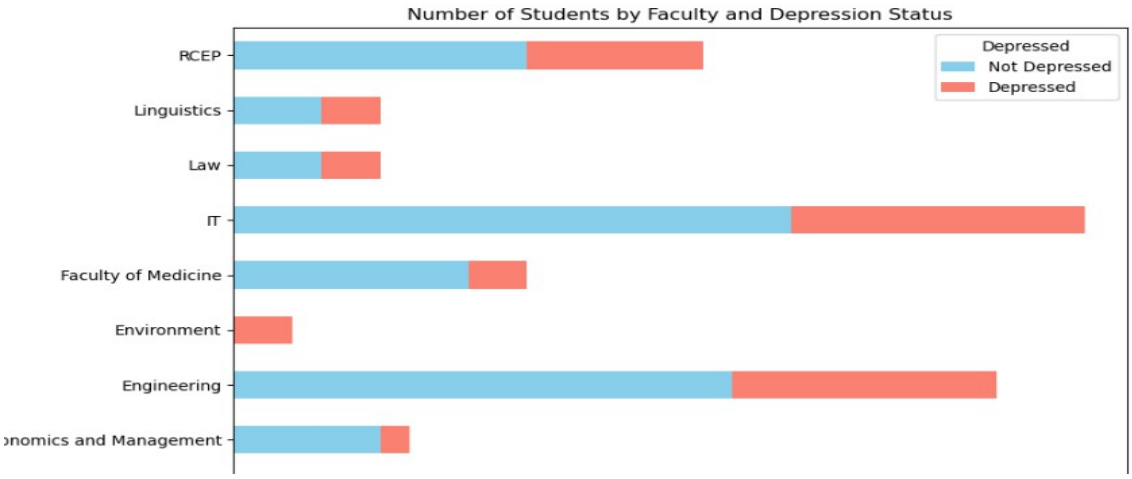
- Among faculties there are not any annomalies in depression rate;
- Experiencing increased levels of depression during the second and third years of university is a common phenomenon for many students.
- Grades with year are getting better,because as students progress through their education, they become more familiar with the academic system, expectations, and requirements.
- There is no much difference of grades among those, who depressed and who are not;
- Marriage often brings additional responsibilities, such as managing household tasks, financial obligations, and potentially starting a family. Juggling these new responsibilities alongside academic commitments can be overwhelming and lead to increased stress and pressure, which may contribute to feelings of depression;
- Women among interviewed oftenly feel more depressed, while men are less depressed and more anxious.
- There are no anomalies among depression rate and age groups.

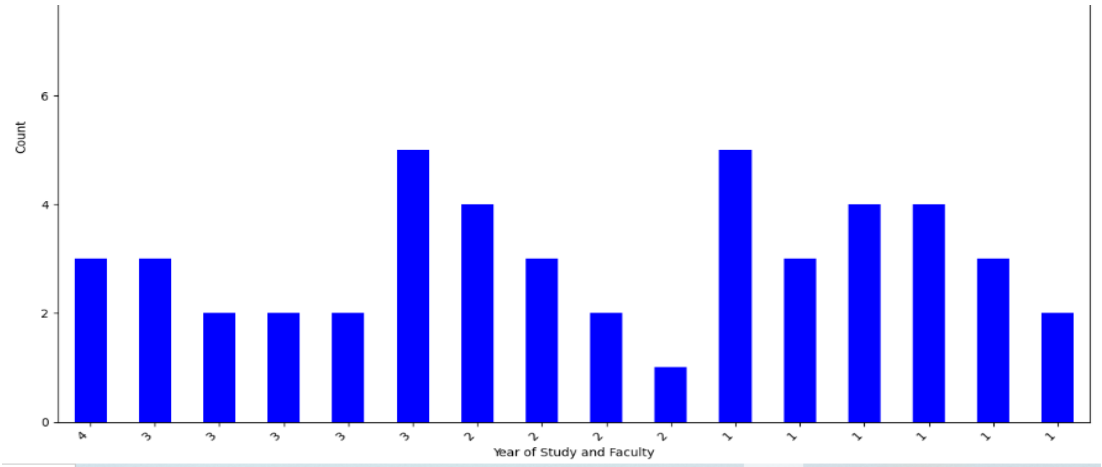
Recommendation:

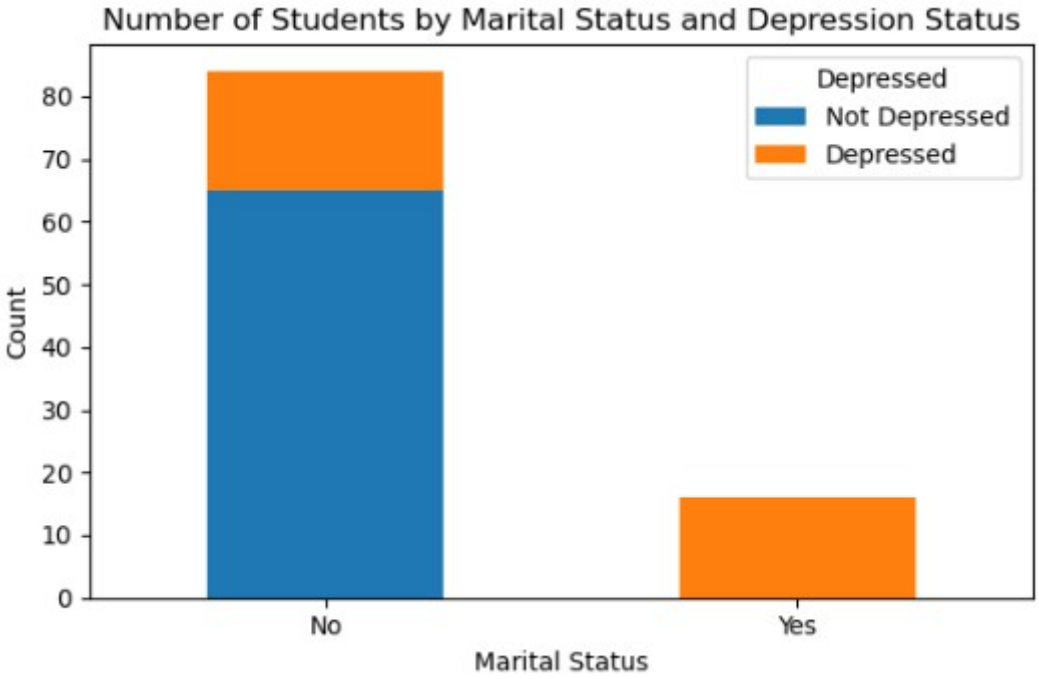
- Depression often triggered by increased responsobilities and study workload. Lack of free time to rest and ability to relieve pressure are main factors of negative affection on mental health. Students, who are worry about their grades too much don't have significally better grades, but sucrifies their mental health for it. Developing a discipline, ability to focus and habit to give yourself a healthy rest may be much more beneficial, that constant rush and stress to be better in your education.

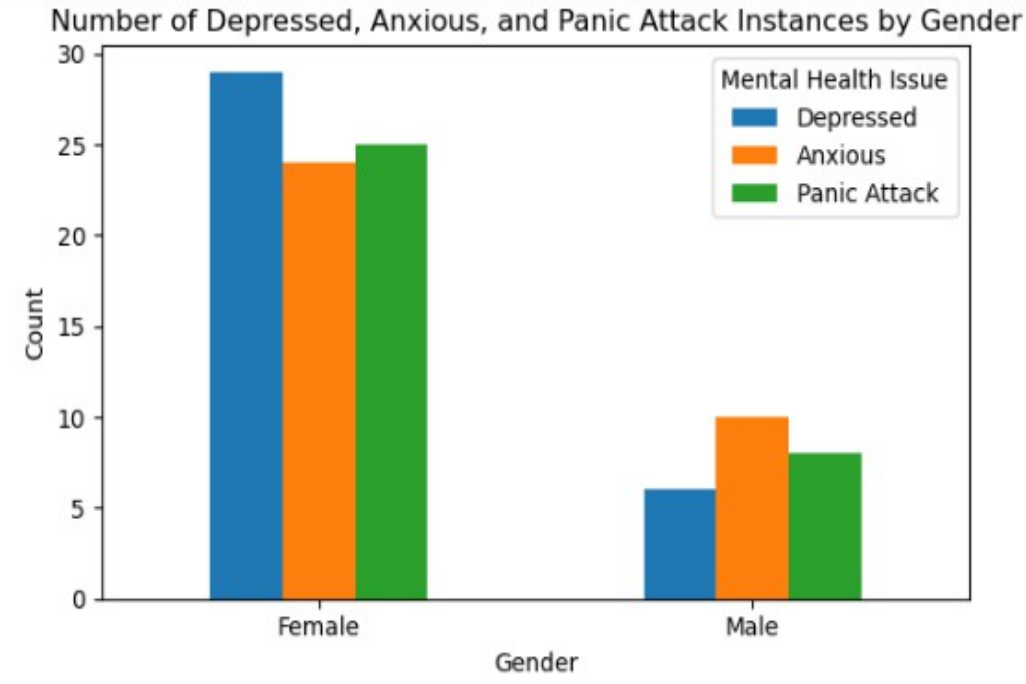
Data Visualisaton

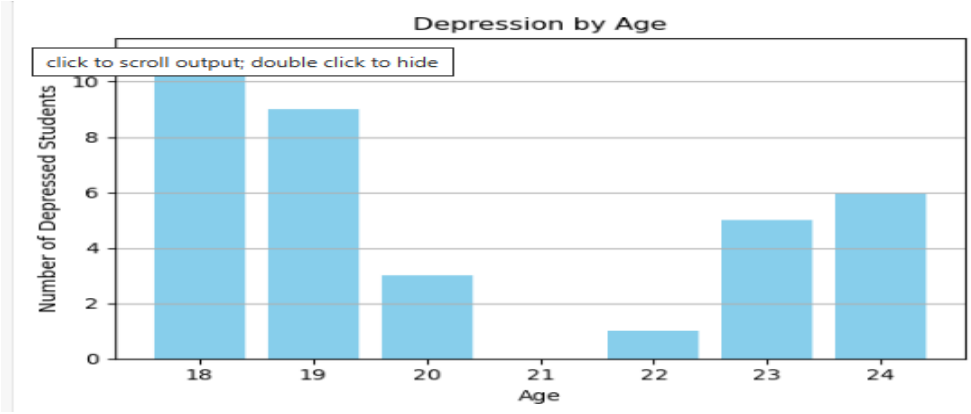







Number of Students by Marital Status and Depression Status
Depressed
Not Depressed
Depressed
Count
0
10
20
30
40
50
60
70
80
No
Yes
Marital Status


Number of Depressed, Anxious, and Panic Attack Instances by Gender
Mental Health Issue
Depressed
Anxious
Panic Attack
Count
0
5
10
15
20
25
30
Female
Male
Gender


Depression by Age
click to scroll output; double click to hide
Number of Depressed Students
0
2
4
6
8
10
18
19
20
21
22
23
24
Age