Analysis of Employment outcomes for ASU Graduates

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[Tableau Public Dashboard on Cloud](#)

Overview of the Data

The data contains detailed information about the employment outcomes of ASU students including their educational background, demographics, and post - graduation status.

card_id: Unique identifier for each student record.
recipient_primary_major: The primary major of the student.
recipient_secondary_majors: Any secondary majors the student may have pursued (if applicable).
recipient_education_level: The education level of the student, such as Bachelor's or Master's degree.
recipient_primary_college: The college or school within the institution that the student is affiliated with.
recipient_gender: The gender of the student.
complete_term: Refers to the code where the middle two integers display graduation year and the last integer displays the term (1 - 'Spring', 4 - 'Summer' and 7 - 'Fall').
response_status: The status of the student's response, indicating whether it was submitted or in progress.
outcome: The post-graduation outcome of the student, which includes categories like "Working," "Still Looking," "Continuing Education," etc.
employer_industry: The industry of the student's employer, if they are employed.
employment_category: Refers to the category of employer they are working with (Organization, Entreprenuer, Faculty Position, etc.)
employment_type: Refers to the type of employment they have (Part-Time, Full-Time)
job_function: Illustrates the type of job function the candidate is currently practicing.
offer_date: Indicates the date when the candidate was offered the position.
annual_salary: The annual salary of the student if they are working, with details on the pay schedule.
acad_plan_adj_descr: Illustrates details about the major of the candidate.
acad_career_descr: Detailed academic information including academic career description, adjusted academic plan description, academic plan type, and degree description.
response_status: submitted/in-progress
pay_schedule: Information on the payment if it is annual, stipend or hourly wage.
campus: Arizona State University campuses Tempe, Polytechnic, Downtown, West Valley.
acad_plan_type_descr: Ilustrated if the degree pursued is a major or a minor degree.
arizona_residency_descr: Information about the student's campus and residency status (Resident, Non-Resident, International).
degree_descr: If the degree is Master's in Science, Bachelor's in Science, Master's in Business Administration.
minority_status_descr: Indicates the minority status of the student (e.g., Black/African American, White, Asian, etc.).
citz_country_descr: The citizenship country of the student.

Understanding the Data structure

Initially, the data consisted of 21849 rows and and 24 columns. There were several null and blank values categorically and numerically, that needed handling. Some data types demanded to be fixed before the analysis in SQL. Here is a detailed overview of Data Cleansing, Exploration and Analysis:

Creating Table to Import Data in Postgres

In designing the database, I created a table named `graduate_employment_data` within the `graduate_data` schema to capture detailed information about graduates' employment outcomes. The table includes columns for personal details, academic background, employment specifics, and demographic information, using appropriate data types such as `UUID` for unique identifiers, `VARCHAR` for textual data, and `NUMERIC` for financial values, ensuring a comprehensive structure for analyzing graduate employment trends.

```
CREATE TABLE graduate_data.graduate_employment_data (
    card_id UUID,
    recipient_primary_major VARCHAR(255),
    recipient_secondary_majors TEXT,
    recipient_education_level VARCHAR(50),
    recipient_primary_college VARCHAR(255),
    recipient_gender VARCHAR(10),
    complete_term INTEGER,
    response_status VARCHAR(50),
    outcome VARCHAR(50),
    employer_industry VARCHAR(255),
    employment_category VARCHAR(255),
    employment_type VARCHAR(50),
    job_function VARCHAR(255),
    offer_date DATE,
    annual_salary NUMERIC(15, 2),
    pay_schedule VARCHAR(50),
    acad_career_descr VARCHAR(50),
    acad_plan_adj_descr VARCHAR(255),
    acad_plan_type_descr VARCHAR(50),
    degree_descr VARCHAR(255),
    campus VARCHAR(50),
    arizona_residency_descr VARCHAR(50),
    minority_status_descr VARCHAR(50),
    citz_country_descr VARCHAR(100)
);
```

Data Cleaning Process

Identifying Duplicate Rows

Utilized window function with ROW_NUMBER() to identify duplicate or repeating entries. All the entries were partitioned by all the columns to identify the duplicates correctly. Further, entries with row_number_column > 1 were identified to be duplicated rows/repeating entries.

```
with row_number_query AS (
select card_id, row_number() over ( partition by card_id,
recipient_primary_major, recipient_secondary_majors,
recipient_education_level, recipient_primary_college, recipient_gender,
complete_term, response_status, outcome, employer_industry,
employment_category, employment_type, job_function, offer_date,
annual_salary, pay_schedule, acad_career_descr, acad_plan_adj_descr,
acad_plan_type_descr, degree_descr, campus, arizona_residency_descr,
minority_status_descr, citz_country_descr
order by card_id) as row_number_column
from graduate_data.graduate_employment_data
)
select * from row_number_query
where row_number_column > 1;
```

Ensuring that the entries to be deleted are replicates of the first entry

```
select * from graduate_data.graduate_employment_data
where card_id = '01495981-e4c4-3008-008f-a6d581749b0f';

select * from graduate_data.graduate_employment_data
where card_id = 'b7c83db8-5a34-b7ad-12b9-52062533342a';
```

Deleting Duplicate Entries

```
with row_number_query as (
select ctid, row_number() over ( partition by
card_id, recipient_primary_major, recipient_secondary_majors,
recipient_education_level, recipient_primary_college, recipient_gender,
complete_term, response_status, outcome, employer_industry,
employment_category, employment_type, job_function, offer_date,
annual_salary, pay_schedule, acad_career_descr, acad_plan_adj_descr,
acad_plan_type_descr, degree_descr, campus, arizona_residency_descr,
minority_status_descr, citz_country_descr
order by card_id) as row_number_column
from graduate_data.graduate_employment_data
)
delete from graduate_data.graduate_employment_data
WHERE ctid IN (
    SELECT ctid
    FROM row_number_query
    WHERE row_number_column > 1
);
```

Fixing data structure and handling null values within the dataset

Annual Salary:

Annual Salary had over 12963 nulls and a few salaries being exceptionally higher. So instead of data imputation with mean or median to avoid any bias or skewness in the data, a subset of data with NON-NULL salaries where considered for the analysis.

Offer Date:

For this field, 12021 values were missing, so the null values were kept as the same throughout the analysis.

Identifying and handling recipient_primary_majors with incorrect structure and null values

In this column, there were several NULL values for recipient_primary_majors that were not known. To maintain the consistency of the dataset for analysis, the NULL values were imputed with 'Not Known'.

```
select distinct(recipient_primary_major) from
graduate_data.graduate_employment_data
order by recipient_primary_major

update graduate_data.graduate_employment_data
set recipient_primary_major = 'Not Known'
where recipient_primary_major is null;
```

Identifying and handling recipient_secondary_majors with incorrect structure and null values

In the recipient_secondary_majors column, there were several NULL values indicating that secondary majors were not reported. To ensure consistency, the NULL values were replaced with 'Not Reported'.

```
select distinct(recipient_secondary_majors) from
graduate_data.graduate_employment_data
order by recipient_secondary_majors;

update graduate_data.graduate_employment_data
set recipient_secondary_majors = 'Not Reported'
where recipient_secondary_majors is null;
```

Identifying and handling recipient_gender with incorrect structure and null values

The recipient_gender column contained inconsistent gender labels and NULL values. To standardize, gender values were normalized ('Man' to 'Male') and other unknown or unlisted values were set to 'Unknown'.

```
select distinct(recipient_gender) from graduate_data.graduate_employment_data;

update graduate_data.graduate_employment_data
set recipient_gender =
case
    when recipient_gender = 'Male' then 'Male'
    when recipient_gender = 'Female' then 'Female'
    when recipient_gender = 'Intersex' then 'Intersex'
    when recipient_gender = 'Agender' then 'Agender'
    when recipient_gender = 'Man' then 'Male'
```

```
        else 'Unknown'
    end;
```

Identifying and handling recipient_primary_college with incorrect structure and null values

For the recipient_primary_college column, discrepancies were corrected by standardizing the name of the college, and NULL values were updated to 'Other' to ensure no missing data for primary college.

```
select distinct(recipient_primary_college) from
graduate_data.graduate_employment_data
order by recipient_primary_college;

update graduate_data.graduate_employment_data
set recipient_primary_college = 'W.P. Carey School of Business'
where recipient_primary_college = 'W. P. Carey School of Business';

select count(*) as cnt from graduate_data.graduate_employment_data
where recipient_primary_college is null;

update graduate_data.graduate_employment_data
set recipient_primary_college = 'Other'
where recipient_primary_college is null;
```

Identifying and handling outcome with incorrect structure and null values

In the outcome column, NULL values were found which could lead to incomplete data. These were updated to 'Unknown' to maintain data completeness for analysis.

```
select distinct(outcome) from graduate_data.graduate_employment_data;

select count(*) from graduate_data.graduate_employment_data
where outcome is null;

update graduate_data.graduate_employment_data
set outcome = 'Unknown'
where outcome is null;
```

Identifying and handling employer_industry with incorrect structure and null values

The employer_industry column contained NULL values that were updated to 'Unspecified Industry' to avoid missing data in analyses related to industry classification.

```
select distinct(employer_industry) from graduate_data.graduate_employment_data
order by employer_industry;

select count(*) from graduate_data.graduate_employment_data
```

```
    where employer_industry is null;

    update graduate_data.graduate_employment_data
    set employer_industry = 'Unspecified Industry'
    where employer_industry is null;
```

Identifying and handling employment_category with incorrect structure and null values

For the employment_category column, NULL values were set to 'Other' to maintain consistency in categorizing employment types.

```
    select distinct(employment_category) from graduate_data.graduate_employment_data
    order by employment_category;

    select count(*) from graduate_data.graduate_employment_data
    where employment_category is null;

    update graduate_data.graduate_employment_data
    set employment_category = 'Other'
    where employment_category is null;
```

Identifying and handling employment_type with incorrect structure and null values

The employment_type column contained NULL values, which were updated to 'Unknown' to ensure the dataset was complete and consistent.

```
    select distinct(employment_type) from graduate_data.graduate_employment_data
    order by employment_type;

    select count(*) from graduate_data.graduate_employment_data
    where employment_type is null;

    update graduate_data.graduate_employment_data
    set employment_type = 'Unknown'
    where employment_type is null;
```

Identifying and handling job_function with incorrect structure and null values

NULL values in the job_function column were updated to 'Unknown', ensuring that no records lacked job function information.

```
    select distinct(job_function) from graduate_data.graduate_employment_data
    order by job_function;

    select count(*) from graduate_data.graduate_employment_data
    where job_function is null;
```

```
update graduate_data.graduate_employment_data
set job_function = 'Unknown'
where job_function is null;
```

Identifying and handling campus with incorrect structure and null values

To standardize the campus data, various representations of campuses were normalized (e.g., 'TEMPE' to 'Tempe') to ensure consistency across records. The campuses were filtered out based on my domain knowledge.

```
select distinct(campus) from graduate_data.graduate_employment_data
order by campus;

update graduate_data.graduate_employment_data
set campus = case
    when campus in ('Tempe', 'TEMPE') then 'Tempe'
    when campus in ('POLY', 'Polytechnic') then 'Polytechnic'
    when campus in ('Downtown', 'DTPHX', 'TBIRD') then 'Downtown'
    when campus in ('West', 'WEST') then 'West Valley'
    else campus  -- leaving the other values as they are
end;
```

Identifying and handling pay_schedule with incorrect structure and null values

The pay_schedule column had NULL values which were updated to 'Unknown' to prevent missing data related to pay frequency.

```
select distinct(pay_schedule) from graduate_data.graduate_employment_data
order by pay_schedule;

select count(*) from graduate_data.graduate_employment_data
where pay_schedule is null;

update graduate_data.graduate_employment_data
set pay_schedule = 'Unknown'
where pay_schedule is null;
```

Altering Table to add new columns from complete_term field

Creating and updating a new column for graduation year

A new column graduation_year was added to the table to capture the year of graduation. This was populated by extracting and converting the relevant portion of the complete_term column, adjusting it to reflect the correct year format.

```
alter table graduate_data.graduate_employment_data
add column graduation_year int;

update graduate_data.graduate_employment_data
set graduation_year = cast(substring(cast(complete_term as varchar) from 2 for 2)
as int) + 2000;
```

Creating and updating a new column for graduation term

A new column graduation_term was added to categorize the graduation term (Spring, Summer, or Fall) based on the last digit of the complete_term column. The term was determined by matching the last digit to a specific season.

```
alter table graduate_data.graduate_employment_data
add column graduation_term varchar(10);

update graduate_data.graduate_employment_data
set graduation_term =
    case
        when right(cast(complete_term as varchar), 1) = '1' then 'Spring'
        when right(cast(complete_term as varchar), 1) = '4' then 'Summer'
        when right(cast(complete_term as varchar), 1) = '7' then 'Fall'
        else 'Unknown'
    end;
```

Dropping the complete_term column

After extracting and updating the relevant data into new columns, the complete_term column was dropped as it was no longer needed.

```
alter table graduate_data.graduate_employment_data
drop column complete_term;
```

Dropping the acad_plan_type_descr column

The acad_plan_type_descr column was removed from the table as part of cleaning up unnecessary data, ensuring the dataset remains focused and relevant.

```
alter table graduate_data.graduate_employment_data
drop column acad_plan_type_descr;
```

Filtering data to keep only specific campuses

To focus the analysis on relevant campuses, the dataset was filtered to retain only records from the 'Tempe',

'West Valley', 'Polytechnic', and 'Downtown' campuses. Records from other campuses were deleted to ensure a targeted and relevant dataset.

```
delete from graduate_data.graduate_employment_data
where campus not in ('Tempe', 'West Valley', 'Polytechnic', 'Downtown');
```

Analysis of Data

1. What are the outcome trends of BAA (Black/African American) students over the course of two years and how do they compare to other minority students?

Problem Statement:

The primary objective of this analysis is to evaluate the outcome trends of Black/African American (BAA) students over the course of two years and compare these trends with those of other minority students. The aim is to understand the relative performance and post-graduation trajectories of BAA students in various outcome categories, such as employment, continuing education, military service, and others. This analysis will help in identifying any disparities or trends that could inform policy decisions, support strategies, or targeted interventions.

Data Source and Description:

The analysis uses data from the graduate_data.graduate_employment_data table, which contains information on the post-graduation outcomes of students, including their graduation year, outcome category, and minority status. The relevant outcome categories include "Continuing Education," "Military," "Not Seeking," "Still Looking," "Working," "Unknown," and "Volunteering."

Methodology:

The approach involves the following steps

a) **Data Segmentation:**

1. Two distinct segments were created: one for BAA students and another for all other minority students. The segregation was based on the minority_status_descr field.

2. BAA students were identified where minority_status_descr was 'Black/African American'.

3. Other minority students included all other groups except BAA, with the exclusion of records where minority_status_descr was null.

b) **Aggregation of Outcomes:**

1. For both segments, the data was aggregated by graduation_year and outcome to calculate the count of students in each outcome category.

2. Two Common Table Expressions (CTEs) were used to separately compute these counts for BAA students (BAA_Outcomes) and other minority students (Other_Minority_Outcomes).

c) Here's the revised content for the comparative analysis section in your markdown file:

Comparative Analysis

To align the data for comparison between BAA students and other minority students, a left join was performed on `graduation_year` and `outcome` between the `BAA_Outcomes` and `Other_Minority_Outcomes` datasets. This allowed for a side-by-side comparison of outcome counts for the two groups.

The formula used to report the Percentage per outcome over the two years for Black/African American to the other minorities is as follows:

$$ \text{BAA to Other Minority Percentage} = \left(\frac{\text{BAA Count}}{\text{Other Minority Count}}\right) \times 100 $$

This percentage reflects how the outcome count of BAA students compares to the count of other minority students, providing insights into their relative representation in each outcome category. A higher percentage indicates a closer parity between the two groups, while a lower percentage suggests underrepresentation of BAA students in that specific outcome relative to other minority students.

```
with BAA_Outcomes as (
    select
        graduation_year,
        outcome,
        count(*) as baa_count
    from
        graduate_data.graduate_employment_data
    where
        minority_status_descr = 'Black/African American'
    group by
        graduation_year, outcome
),
Other_Minority_Outcomes as (
    select
        graduation_year,
        outcome,
        count(*) as other_minority_count
    from
        graduate_data.graduate_employment_data
    where
        minority_status_descr <> 'Black/African American'
        and minority_status_descr is not null
    group by
        graduation_year, outcome
)
select
    b.graduation_year,
    b.outcome,
    b.baa_count,
    o.other_minority_count,
    ROUND((b.baa_count::NUMERIC / nullif(o.other_minority_count, 0)) * 100, 2) as
baa_to_other_minority_percentage
from
```

```
        BAA_Outcomes b
    left join
        Other_Minority_Outcomes o
        on b.graduation_year = o.graduation_year
        and b.outcome = o.outcome
    order by
        b.graduation_year, b.outcome;
```

Findings and Results

Based on the query results, the following observations were made for the years 2021, 2022, and 2023:

	graduation_year integer	outcome character varying (50)	baa_count bigint	other_minority_count bigint	baa_to_other_minority_percentage numeric
1	2021	Continuing Education	5	198	2.53
2	2021	Military	1	5	20.00
3	2021	Not Seeking	1	21	4.76
4	2021	Still Looking	18	486	3.70
5	2021	Working	36	1076	3.35
6	2022	Continuing Education	46	866	5.31
7	2022	Military	5	69	7.25
8	2022	Not Seeking	6	90	6.67
9	2022	Still Looking	61	1572	3.88
10	2022	Unknown	8	71	11.27
11	2022	Volunteering	4	44	9.09
12	2022	Working	288	5973	4.82
13	2023	Continuing Education	65	1817	3.58
14	2023	Military	3	37	8.11
15	2023	Not Seeking	4	78	5.13
16	2023	Still Looking	29	1006	2.88
17	2023	Unknown	3	43	6.98
18	2023	Volunteering	1	58	1.72
19	2023	Working	171	3928	4.35

Overall Trends
Across the observed years, BAA students consistently showed lower counts across most outcome categories compared to other minority students, as indicated by the relatively low percentage ratios.

Specific Outcomes
Working: The percentage of BAA students in employment was consistently low, ranging from **3.35% in 2021 to 4.35% in 2023**, compared to other minority students. This suggests a **potential disparity in employment outcomes**.

Still Looking: A notable proportion of BAA students were still seeking employment post-graduation, with percentages around **3.70% in 2021 and 2.88% in 2023**. This indicates a **persistent challenge in job placement for BAA students relative to their peers**.

Continuing Education: The trend for continuing education showed a gradual increase, with the BAA to other minority percentage rising from **2.53% in 2021 to 3.58% in 2023**, suggesting a **growing interest or need**

for further education among BAA students.

Military and Volunteering: These categories showed relatively higher representation percentages for BAA students, especially in 2022, where the military category **peaked at 20.00% in 2021**. Although these are less common outcomes, the higher percentages indicate a noteworthy choice among BAA students.

Unknown and Not Seeking: The percentages in these categories were also low but showed some fluctuation, indicating variability in post-graduation paths that are neither clearly defined nor active in employment or education.

2) Are there differences in outcomes as it relates to gender or Arizona residency status?

Introduction:
The goal of this analysis is to determine if there are significant differences in post-graduation outcomes related to gender or Arizona residency status among students. Understanding these differences can provide valuable insights into how demographic factors influence the success and career paths of graduates. This analysis is particularly relevant for identifying any disparities that may exist and could inform targeted interventions or policy adjustments.

Data Source and Description:
The data used for this analysis comes from the graduate_data.graduate_employment_data table, which includes details on post-graduation outcomes such as employment, further education, military service, and other categories. The dataset contains information on the gender of the graduates, which is categorized as "Agender," "Female," "Intersex," "Male," and "Unknown." Additionally, the data includes the residency status of students, distinguishing between Arizona residents and non-residents.

Methodology:
The approach for this analysis involved the following steps:

```
select
    recipient_gender,
    sum(case when outcome = 'Volunteering' then 1 else 0 end) as Volunteering,
    sum(case when outcome = 'Working' then 1 else 0 end) as Working,
    sum(case when outcome = 'Still Looking' then 1 else 0 end) as Still_Looking,
    sum(case when outcome = 'Continuing Education' then 1 else 0 end) as
Continuing_Education,
    sum(case when outcome = 'Not Seeking' then 1 else 0 end) as Not_Seeking,
    sum(case when outcome = 'Military' then 1 else 0 end) as Military,
    sum(case when outcome = 'Unknown' then 1 else 0 end) as "Unknown"
from
    graduate_data.graduate_employment_data
group by
    recipient_gender
order by
    recipient_gender
```

Output

	recipient_gender character varying (10)	volunteering bigint	working bigint	still_looking bigint	continuing_education bigint	not_seeking bigint	military bigint	Unknown bigint
1	Agender	0	1	0	0	0	0	0
2	Female	60	6089	1772	1685	122	34	80
3	Intersex	0	3	1	0	0	0	0
4	Male	57	5297	1376	1303	76	86	60
5	Unknown	1	82	23	9	2	0	1

Data Segmentation by Gender

1. The dataset was grouped by recipient_gender to calculate the count of students in each outcome category for different genders.

2. Outcome categories included "Volunteering," "Working," "Still Looking," "Continuing Education," "Not Seeking," "Military," and "Unknown."

3. The counts for each outcome were calculated using conditional aggregation with SUM and CASE statements, where each outcome was counted only if it matched the specified condition.

4. The results were ordered by gender to facilitate clear comparisons across categories.

Data Segmentation by Arizona Residency Status:

1. A similar approach can be employed for Arizona residency status by grouping the data by arizona_residency_status and using conditional aggregation to count the outcomes.

2. This additional segmentation would help in assessing whether Arizona residents and non-residents differ significantly in their post-graduation outcomes.

Analysis and Results

Based on the query results, the following observations were made for each gender group:

a) **Gender Differences in Outcomes:**

Female Graduates:

1. The largest group, with 6,089 graduates in the "Working" category, which is the highest count across all outcome categories and genders.

2. Female graduates also had substantial representation in "Continuing Education" (1,685) and "Still Looking" (1,772), indicating that a significant portion pursues further education or remains in the job search phase.

Male Graduates:

1. A total of 5,297 male graduates were recorded in the "Working" category, slightly lower than female graduates.

2. Male graduates showed a similar trend in "Continuing Education" (1,303) and "Still Looking" (1,376), though in lower numbers compared to females.

3. Notably, male graduates had a higher count in the "Military" category (86), suggesting a slightly stronger tendency toward military service.

Agender and Intersex Graduates:

1. These groups had very low representation in the dataset, with only a few occurrences in the "Working" category and none or minimal counts in other outcome categories.

2. Due to the small sample sizes, it is difficult to draw conclusive trends or make meaningful comparisons for these genders.

Unknown Gender:

The "Unknown" category had minimal representation across all outcomes, with the highest being in "Working" (82) and "Still Looking" (23).

Implications of Findings:

1. The data suggests that female graduates are more represented in the workforce and in continuing education compared to male graduates.

2. Male graduates have a slightly higher inclination towards military service. Both male and female graduates exhibit substantial counts in the "Still Looking" category, highlighting ongoing challenges in securing employment post-graduation.

3. The low representation of agender, intersex, and unknown gender categories limits the ability to make broader inferences for these groups; however, it underscores the need for more inclusive data collection and analysis in future studies.

Residency Status:

This report examines the differences in outcomes for graduates based on their Arizona residency status. The outcomes are categorized into various groups such as "Volunteering," "Working," "Still Looking," "Continuing Education," "Not Seeking," "Military," and "Unknown." The data is grouped by residency status, specifically "Non-Resident" and "Resident," providing insights into how these groups compare across different post-graduation outcomes.

Code

```
select
    arizona_residency_descr,
    sum(case when outcome = 'Volunteering' then 1 else 0 end) as Volunteering,
    sum(case when outcome = 'Working' then 1 else 0 end) as Working,
    sum(case when outcome = 'Still Looking' then 1 else 0 end) as Still_Looking,
    sum(case when outcome = 'Continuing Education' then 1 else 0 end) as
Continuing_Education,
    sum(case when outcome = 'Not Seeking' then 1 else 0 end) as Not_Seeking,
    sum(case when outcome = 'Military' then 1 else 0 end) as Military,
    sum(case when outcome = 'Unknown' then 1 else 0 end) as "Unknown"
from
    graduate_data.graduate_employment_data
```

```
    group by
        arizona_residency_descr
    order by
        arizona_residency_descr;
```

Output

	arizona_residency_descr character varying (50) 🔒	volunteering bigint 🔒	working bigint 🔒	still_looking bigint 🔒	continuing_education bigint 🔒	not_seeking bigint 🔒	military bigint 🔒	Unknown bigint 🔒
1	Non-Resident	80	5809	1564	1283	96	74	79
2	Resident	38	5663	1608	1714	104	46	62

Key Findings for Residency Outcome Distribution by Arizona Residency Status:

Non-Residents:

1. The majority of non-resident graduates are in the "Working" category (5,809), followed by "Still Looking" (1,564) and "Continuing Education" (1,283).
2. Non-residents have higher counts in "Volunteering" (80) and "Military" (74) compared to residents.

Residents:

1. Resident graduates also have the highest counts in the "Working" category (5,663), but with slightly fewer numbers compared to non-residents.
2. Residents lead in the "Continuing Education" category (1,714), which is notably higher than non-residents, suggesting a greater inclination toward further education.
3. The counts in the "Still Looking" category are similar between residents (1,608) and non-residents (1,564), indicating comparable challenges in securing employment post-graduation.

Conclusion

For Gender: The analysis reveals notable differences in outcomes based on gender, with female graduates showing a higher representation in both employment and continuing education compared to male graduates. Male graduates, meanwhile, show a slightly higher tendency towards military service. The findings suggest that while there are overall similarities in the primary categories (employment and continuing education), gender-specific trends exist that could benefit from targeted support or programs aimed at bridging gaps, particularly in the "Still Looking" category.

For Residency: Both groups have the highest representation in the "Working" category, demonstrating a strong trend towards employment for graduates regardless of residency. Residents have a higher count in "Continuing Education" (1,714), suggesting that residency status might influence decisions to pursue further education within the state. Non-residents show higher engagement in "Volunteering" and "Military" outcomes, which could reflect broader opportunities or different cultural and personal choices.

3) Of the graduates whose outcome is working full-time, what is the avg starting salary by college over the two years?

Introduction

This analysis aims to determine the average starting salary for graduates working full-time, categorized by their primary college, over the two-year period of 2021, 2022 and 2023. The objective is to identify salary

trends and variations across different colleges, providing insights into how the graduates' primary college influences their starting salary outcomes. This information is valuable for understanding the economic impact of different academic programs and can aid in guiding prospective students and academic advisors.

Data Source and Description

The data utilized for this analysis comes from the graduate_data.graduate_employment_data table, which includes details on graduates' outcomes, employment types, and annual salaries. Specifically, the analysis focuses on graduates whose outcome is "Working" and who are employed in a "Full-Time" capacity. The dataset contains information on the graduates' primary college, which allows for segmentation and comparison of average starting salaries by college.

Methodology

The approach for analyzing the average starting salary by college involved the following steps:

```sql
select
    recipient_primary_college as primary_college_name,
    coalesce(round(avg(case when graduation_year = 2021 then annual_salary
end),2),0) as "2021",
    coalesce(round(avg(case when graduation_year = 2022 then annual_salary
end),2),0) as "2022",
    coalesce(round(avg(case when graduation_year = 2023 then annual_salary
end),2),0) as "2023"
from
    graduate_data.graduate_employment_data
where
    outcome = 'Working' and
    employment_type = 'Full-Time'
    and annual_salary is not null
group by
    recipient_primary_college
order by
    recipient_primary_college;
```

Output

	primary_college_name character varying (255)	2021 numeric	2022 numeric	2023 numeric
1	College of Global Futures	88584.00	83015.92	66997.91
2	College of Health Solutions	43529.78	63535.33	55526.94
3	College of Integrative Sciences and Arts	40083.13	68741.29	63088.78
4	Edson College of Nursing and Health Innovation	57647.36	71014.87	74309.76
5	Graduate College	42500.00	338777.78	55706.40
6	Herberger Institute for Design and the Arts	122258.57	48261.45	47842.12
7	Ira A. Fulton Schools of Engineering	86798.90	99162.68	91646.88
8	Mary Lou Fulton Teachers College	45336.94	56127.05	54981.23
9	New College of Interdisciplinary Arts and Sciences	58874.41	59198.98	48896.98
10	Other	0	62840.00	100500.00
11	Sandra Day O'Connor College of Law	125142.86	91128.11	82454.88
12	The College of Liberal Arts and Sciences	54525.30	56444.27	54567.89
13	Thunderbird School of Global Management	73726.00	85641.74	87413.43
14	W.P. Carey School of Business	75912.12	73203.35	75742.21
15	Walter Cronkite School of Journalism and Mass Com…	43574.86	64306.04	44284.56
16	Watts College of Public Service & Community Solut	41899.86	58609.40	56199.08

Data Filtering:

The data was filtered to include only those records where the outcome was "Working" and the employment type was "Full-Time." Additionally, only records with non-null annual salary values were considered to ensure the accuracy of the salary averages.

Grouping and Aggregation:

The dataset was grouped by recipient_primary_college, which represents the primary college of the graduates. The average starting salary was calculated for each primary college using the AVG function, segmented by the graduation years 2021, 2022, and 2023. The averages were rounded to two decimal places for clarity and precision.

Handling Missing Data:

The COALESCE function was used to handle cases where the average salary data might be missing for a particular year. In such cases, the average was set to 0, ensuring that all colleges were represented in the output even if data for some years was unavailable.

Ordering and Presentation:

The results were ordered by the recipient_primary_college to provide a clear and organized view of the salary data across different colleges.

This ordering facilitates easy comparison between colleges and allows for quick identification of trends and variations in starting salaries.

Analysis

Based on the query results, the following observations were made regarding the average starting salary by college for graduates working full-time:

Yearly Trends:

1. The analysis includes data for the years 2021, 2022, and 2023, although the primary focus was on the two-year period of 2021 and 2022 as specified in the query.

2. For each college, the average starting salary was calculated separately for each year, allowing for year-over-year comparisons and the identification of trends.

Variations by College:

1. Significant variations in average starting salaries were observed across different colleges, reflecting the diverse economic opportunities associated with different fields of study and the market demand for various skill sets.

2. Colleges with a strong focus on high-demand fields, such as technology, engineering, and business, tended to have higher average starting salaries compared to those focusing on fields with traditionally lower starting salaries, such as arts and humanities.

Notable Observations

1. Some colleges showed consistent growth in average starting salaries over the years, indicating positive economic trends and possibly successful career support services or strong industry connections.

2. Conversely, a few colleges exhibited stagnation or even a decline in average starting salaries, which could warrant further investigation to identify potential causes such as shifts in industry demand, changes in curriculum, or other influencing factors.

Implications

1. The findings suggest that the primary college of graduates plays a significant role in influencing their starting salary outcomes. This information can be used by academic advisors to guide students in their career planning and by colleges to enhance their programs and career support services.

2. For prospective students, understanding these salary trends can aid in making informed decisions about their choice of college and field of study, aligning their education with their career and financial goals.

Conclusions:

This analysis provides a detailed view of the employment outcomes for ASU graduates, revealing key trends and areas for improvement. By leveraging these insights, ASU can implement targeted strategies to support its diverse student population, enhance their post-graduation success, and ultimately strengthen the university's reputation as a leader in graduate employability. As ASU continues to evolve its programs and services, these findings can serve as a valuable guide for making data-driven decisions that positively impact the futures of its students.