**ASSIGNMENT -3**

UNIVERSITY PERFORMANCE REPORT

(INFO 5100)

**Team Members:**

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**1. Introduction**

It is very important for student to improve level of education in university and enable upcoming students to enroll to a specific course and choose faculty to get growth in career in a particular field. This Performance Management Process would focus on student, teacher and department development and encourages frequent and honest development conversations throughout the year. The aim of this assignment is to develop a feedback mechanism which would enable us to get feedback from student, employer and consider various other factor like salary and GPA of the student.

**2. Proposed Solution**

The proposed solution is to build a performance model for incoming students for course selection to get to their career of interest. The proposed solution works on various factors including feedback from current students, feedback from employer on course and department and factors like student GPA and their salary on employment.

This dashboard will include admin, student and feedback system through which the admin team can evaluate the performance that will be helpful for upcoming students.

**3.Entity**

An entity is an instance of the entity type. In UML, object is an instance of a class. This means that **the entity itself corresponds to the object**. The representation of the object is derived from the representation of the class.

* **Course** – Each course record will have course number, course id, it’s credit and price they are enrolled in.
* **Course catalog** – The Course catalog class is responsible for the student courses in any given semester. It is the set or collection of courses the student took in a semester.
* **Department** – Department is responsible for Academic matters such as students and courses Business matters such as staff, faculty, etc. Maintain course catalog and schedule courses.
* **Student Directory** – Student directory contains the list of the student in the department.
* **Student** – He is Person authorized to get a college degree from the university and contains the details of the student first name, last name, student Id, contact details, address, department, the courses student took per semester has a record of all courses taken during their stay, has a grade point average (GPA)
* **Transcript** - The Transcript class is a historical record of all the courses the student took during their stay at the university. The transcript class knows who the student is. It knows the student course load for any given semester. To find the GPA. retrieve all the course load objects. For each course load object, get all the seat assignments. Iterate over all the seat assignments. For a given seat assignment get the course grade. Total them up grades. Take the average.
* **Course schedule** - Course schedule which represent all the courses the department is scheduled (committed) to teach in a given semester. Course schedules are created every semester. Course schedules are time dependent
* **University** - Responsible for academic matters such as colleges and students Business matters such as marketing, financials, course pricing, etc. Administrative matters such as Human Resources
* **College** - Responsible for Academic matters such as departments and students Business matters such as staff, faculty, etc.
* **Administrators** - Administrators are person responsible for department enrollment numbers and department performance evaluation.

**UML Class Diagram:**

Diagram

Description automatically generated

**Sequence Diagram:**

Chart, box and whisker chart

Description automatically generated

**Sequence Model 1**

Chart

Description automatically generated

**Sequence Model 2**

Chart, calendar

Description automatically generated

**Sequence Model 3**

Graphical user interface, website

Description automatically generated**GUI Representation:**

**Text

Description automatically generatedDashboard for Main Menu**

**Admin Page**

**A screenshot of a computer

Description automatically generated with medium confidence**

**Academic Programs**

**Graphical user interface

Description automatically generated**

**Academic Departments**

Graphical user interface, chart

Description automatically generated

**Get Statistics Graph**

**A screenshot of a computer

Description automatically generated with medium confidence**

**Student Profile Details**

**A screenshot of a computer

Description automatically generated with medium confidence**

**Student Profile**

**Graphical user interface

Description automatically generated**

**Alumni Feedback Page**

Chart

Description automatically generated with medium confidence

University Ranking Model

**University Ranking Model:**

We have developed university ranking model which would help us to map University rankings bases on our methodological framework, compiled using three simple metrics which are subdivided that we believe effectively capture university performance. The ranking is relative and university scoring highest rating would be ranked highest and given 99% percentage.

Thus, universities continue to be evaluated according to the following three metrics:

1. Academic and student metrics
2. Employer and promotion factor
3. Job Related Factor

Per metric contribution to the total ranking is:

|  |  |
| --- | --- |
|  | Total Contribution |
| **1.**    Academic and student metrics | 45.00% |
| **2.**    Employer and promotion factor | 18.00% |
| **3.**    Job Related Factor | 37.00% |

1. **Academic and Student Metrics**

This contribute to total academic performance and how students and alumni feel about university . There is an additional ratio factor which tells the performance and rating is also dependent on time given by faculty on each and university.

**These three hold different percentages and is dependent on their relevance for student:**

|  |  |
| --- | --- |
| **Academic Metrics** | **Total Contribution** |
| Average Student GPA | 40.00% |
| Average Student Rating | 33.00% |
| Student/Faculty Ratio | 27.00% |

There is a factor for each of these 3 levels depending on the marks, rating and ration present in university.

|  |  |
| --- | --- |
| **Average Student GPA** | Factor |
| **0.1-2.1** | 1 |
| **2.1-2.6** | 2 |
| **2.6-3.0** | 3 |
| **3.1-3.5** | 4 |
| **3.5-4.0** | 5 |

**Factor based on Student GPA Factor**

|  |  |
| --- | --- |
| **Average Student Rating** | Factor |
| **0-1.5** | 1 |
| **1.5-2.5** | 2 |
| **2.5-3.5** | 3 |
| **3.5-4.3** | 4 |
| **4.3-5.0** | 5 |

**Factor based on Student Rating Factor**

|  |  |
| --- | --- |
| **Student/Faculty Ratio** | Factor |
| **35:1 and above** | 1 |
| **35:1-23:1** | 2 |
| **23:1-15:1** | 3 |
| **15:1 - 7:1** | 4 |
| **7:1 or below** | 5 |

**Factor based on Student/Faculty Ratio Factor**

1. **Employer and promotion factor**

This contributes to employer and promotion factor. It is based on employer rating and promotions given by employer to employee/student during his job course.

**These two hold different percentages and is dependent on their relevance for student:**

|  |  |
| --- | --- |
| **Employer and promotion factor** | **Contribution** |
| Average Employer Rating | 65.00% |
| Student/Alumni Promotions in last 5 years | 35.00% |

|  |  |
| --- | --- |
| **Average Employer Rating** | Factor |
| **0-1.5** | 1 |
| **1.5-2.5** | 2 |
| **2.5-3.5** | 3 |
| **3.5-4.3** | 4 |
| **4.0-5.0** | 5 |

**Average Employer Rating Factor**

|  |  |
| --- | --- |
| **Student/Alumni Promotions in last 5 years** | Factor |
| **0** | 1 |
| **1** | 2 |
| **2** | 3 |
| **3 or more** | 5 |

**Student Promotion factor in 5 years**

1. **Job Related Factor**

The job-related factor is an important factor which helps us to find how student job is related to university ranking. The factors included are student salary, student occupation which is related to course relevance and a position factor.

They hold percentages as:

|  |  |
| --- | --- |
| **Job Related Factor** | Contribution |
| **Average Salary after course completion (USD pa)** | 50.00% |
| **Occupation** | 30% \* **course relevance factor** |
| **Position** | 20.00% |

|  |  |
| --- | --- |
| **Average Salary after course completion (USD pa)** | Factor |
| **40k or below** | 1 |
| **50k-70k** | 2 |
| **70k-90k** | 3 |
| **90k-110k** | 4 |
| **110k or below** | 5 |

**Average Salary Factor**

|  |  |
| --- | --- |
| **Course relevance** | Factor |
| Course related to current profession | 1 |
| Course unrelated to current profession | 0.5 |

**Course Relevance Factor**

|  |  |
| --- | --- |
| **Position** | Factor |
| Level 1/Entry Level | 2 |
| Level 2/Intermediate Level | 3 |
| Level 3 or above /Senior /Managers and above | 5 |

**Position Factor**

|  |  |  |  |
| --- | --- | --- | --- |
| **Occupation** | **Factor** | **Occupation** | **Factor** |
| Financial and investment analysts | 100 | Landscaping and groundskeeping workers | 49% |
| Bill and account collectors | 98.4 | Dishwashers | 48.9 |
| Computer and information systems managers | 88.3 | Construction laborers | 48.6 |
| Billing and posting clerks | 95 | Fast food and counter workers | 45.9 |
| Budget analysts | 91.2 | Personal care aides | 43.5 |
| Bookkeeping, accounting, and auditing clerks | 90.9 | Bartenders | 31.6 |
| Purchasing managers | 89.2 | Waiters and waitresses | 22.2 |
| Medical secretaries and administrative assistants | 89 | Heating, air conditioning, and refrigeration mechanics and installers | 59.2 |
| Public safety telecommunicators | 95.7 | Bus and truck mechanics and diesel engine specialists | 48.1 |
| Human resources specialists | 88.2 | Construction laborers | 46.4 |
| Dispatchers, except police, fire, and ambulance | 87.7 | Highway maintenance workers | 44.4 |
| Graphic designers | 84% | Carpenters | 41.1 |
| Preschool teachers, special education | 82% | Plumbers, pipefitters, and steamfitters | 35.1 |
| Physical therapists | 52.1 | Shipping, receiving, and inventory clerks | 31.3 |
| Medical records specialists | 68.9 | Nursing assistants | 30.9 |
| Social and community service managers | 64.9 | Physical therapists | 23.4 |
| Chefs and head cooks | 65.7 | Personal care aides | 17.5 |
| Nursing assistants | 59.2 | Landscaping and groundskeeping workers | 14.8 |
| Licensed practical and licensed vocational nurses | 55.4 | Cooks, restaurant | 9.9 |
| Bus drivers, school | 53% | First-line supervisors of construction trades and extraction workers | 8.8 |
| Animal caretakers | 50% | First-line supervisors of food preparation and serving workers | 6 |

**Occupation factor**

The final formula for University Ranking model is:

**Academic & student metrics + employer & promotion factor + job related factor =**

 0.45(0.4\*student gpa factor+ 0.33\*average student rating + 0.27\*student/faculty ratio) + 0.18(0.65\*Average Employer Rating + 0.35\* Student/Alumni Promotions in last 5 years) + 0.27(0.5\*Average Salary after course completion (USD pa) + 0.3\* course relevance factor (Occupation factor) + 0.2\*position factor)

**Lucid Chart Links:**

**UML Diagram:**

[**https://lucid.app/lucidchart/57e5dd1f-41c3-48d7-9f45-b04dd2b678e1/edit?viewport\_loc=-2566%2C81%2C7788%2C3017%2C0\_0&invitationId=inv\_d8ad0d00-f4b7-49c3-bcb3-7d67a0a5684e**](https://lucid.app/lucidchart/57e5dd1f-41c3-48d7-9f45-b04dd2b678e1/edit?viewport_loc=-2566%2C81%2C7788%2C3017%2C0_0&invitationId=inv_d8ad0d00-f4b7-49c3-bcb3-7d67a0a5684e)

**Sequence Diagram1:**

[**https://lucid.app/lucidchart/6b53fedd-6d35-4acf-95fa-1f172e80f272/edit?viewport\_loc=-222%2C0%2C3330%2C1290%2C0\_0&invitationId=inv\_4a6545b7-adf4-4aa2-bfc6-16c6e1e659b4**](https://lucid.app/lucidchart/6b53fedd-6d35-4acf-95fa-1f172e80f272/edit?viewport_loc=-222%2C0%2C3330%2C1290%2C0_0&invitationId=inv_4a6545b7-adf4-4aa2-bfc6-16c6e1e659b4)

**Sequence Diagram2:**

[**https://lucid.app/lucidchart/dc527dc0-d195-46ad-802e-4b5b70b5e262/edit?viewport\_loc=-362%2C711%2C2468%2C956%2C0\_0&invitationId=inv\_05605c39-912a-4246-bedb-3fd91ee05af6**](https://lucid.app/lucidchart/dc527dc0-d195-46ad-802e-4b5b70b5e262/edit?viewport_loc=-362%2C711%2C2468%2C956%2C0_0&invitationId=inv_05605c39-912a-4246-bedb-3fd91ee05af6)

**Sequence Diagram3:**

[**https://lucid.app/lucidchart/2ab5a98e-597d-4e4c-a8d0-e8950c57b015/edit?viewport\_loc=-2529%2C-887%2C6046%2C2342%2C0\_0&invitationId=inv\_9eef0ba6-3bf4-4ff4-9305-c8ef5c18082f**](https://lucid.app/lucidchart/2ab5a98e-597d-4e4c-a8d0-e8950c57b015/edit?viewport_loc=-2529%2C-887%2C6046%2C2342%2C0_0&invitationId=inv_9eef0ba6-3bf4-4ff4-9305-c8ef5c18082f)