**Group Members**: Alec Lewis, Aimee Valladares, Martin Butcher, Zack Retamozo. Aimee will be responsible to for uploading all assignments to Canvas:

**Project Topic**: Helping students determine the best career options based on their education (or major).

**Data**: Labor statistics data for 2018 will be compiled from information collected from the Bureau of Labor Statistics and ONET Online. We will have the excel spreadsheets no later than October 7th.

**3-End UserQuestions/Insights/Views**:

1. The student would like to view the top 3 professions in there respective major, displaying major information (major name and related concentration), student information (student’s first name and student’s last name), concentration information (concentration name), and profession information (profession name, typical entry-level information, needs entry work experience (yes or no), and job outlook). This view needs to be ordered by the student name, major, related concentration, profession name, and job outlook. **Validity Check**: Check that the major and related concentration corresponds to the correct profession. Randomly select a major 3 different times and evaluate if the information match what it displays in the major, student, concentration, and profession tables.
2. The student would like to view what professions are most likely available at a specific location in the United States. This insight would require that the view display location information (the state in the U.S, the related employment levels, and the location quotient) and profession information (profession name and job outlook). This view needs to be ordered by the profession name, location name, and corresponding highest employment level. **Validity Check**: Randomly select a few states and check that the numbers for the employment levels, location quotient, and the job outlook in the location and profession tables.
3. The student would like to view the top 3 industries related to a specified profession. This insight would require that the view display profession information (profession name), the first industry information (industry name, employment level, hourly mean wage, and annual mean wage), the second industry information (industry name, employment level, hourly mean wage, and annual mean wage), and the third industry information (industry name, employment level, hourly mean wage, and annual mean wage). This view needs to be ordered by the profession name, first industry name, first industry employment level, second industry name, second industry employment level, third industry name, and third industry employment level. **Validity**: Randomly select a few professions with different corresponding majors and check if the information matches the profession tables and industry tables as well as the data.

**Conceptual Design**:

1. **Data Analysis**: The design must permit the end-users to answer the 3 questions above.
2. **Entity Relationship Modeling**:
   1. **Data Dictionary**:

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table Name: | Attribute Name: | Contents: | Type: | Format: | Range: | Required: | PK or FK | FK Referenced Table | Number of Rows/Records |
| Major | MAJOR\_NUM | Major ID | Integer | 999999999 | 999999999 - 100000000 | Yes | PK |  | 9 |
|  | MAJOR\_NAME | Name | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | Yes |  |  |  |
|  | ABET\_ACCR | ABET Accreditation | VarChar(3) | XXXXXXXXXX | XXX | Yes |  |  |  |
|  | MAJOR\_CON | Concentration | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | Yes |  |  |  |

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| Profession | PROF\_NUM | Profession ID | Integer | 999999999 | 999999999 - 100000000 | Yes | PK |  | 80 |
|  | PROF\_NAME | Projession Name | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | Yes |  |  |  |
|  | PROF\_DEG | Typical entry-level education | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | No |  |  |  |
|  | PROF\_EWE | Preview work experience | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | No |  |  |  |
|  | PROF\_JOB | Job Outlook | Integer | 99 | 1 - 99 | Yes |  |  |  |
|  | MAJOR\_NUM | Major ID | Integer | 999999999 | 999999999 - 100000000 | Yes | FK | MAJOR |  |

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| Location | LOC\_NUM | Location ID | Integer | 999999999 | 999999999 - 100000000 | Yes | PK |  | 50 |
|  | LOC\_STATE | Location in the US (What state?) | VarChar(15) | XXXXXXXXXX | Xxxxxxxxxxxxxxx | Yes |  |  |  |
|  | LOC\_EMP | Employment Level | Integer | 999999999 | 999999999 - 100000000 | Yes |  |  |  |
|  | LOC\_QUO | Location Quotient | Double | 9.99 | 0.00 - 9.99 | No |  |  |  |
|  | PROF\_NUM | Profession ID | Integer | 999999999 | 999999999 - 100000000 | Yes | FK | PROFESSION |  |

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| Concentration | CON\_NUM | Concentration ID | Integer | 999999999 | 999999999 - 100000000 | Yes | PK |  | 32 |
|  | CON\_NAME | Concentration Name | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | Yes |  |  |  |
|  | MAJOR\_NUM | Major ID | Integer | 999999999 | 999999999 - 100000000 | Yes | FK | MAJOR |  |

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| Student | STU\_NUM | Student ID | Integer | 999999999 | 999999999 - 100000000 | Yes | PK |  | 43 |
|  | STU\_FNAME | Student's First Name | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | Yes |  |  |  |
|  | STU\_LNAME | Student's Last Name | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | Yes |  |  |  |
|  | MAJOR\_NUM | Major ID | Integer | 999999999 | 999999999 - 100000000 | Yes | FK | MAJOR |  |

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| Wage | WAGE\_NUM | Wage ID | Integer | 999999999 | 999999999 - 100000000 | Yes | PK |  | 160 |
|  | WAGE\_MEANH | Mean Hourly Wage | Double | 99.99 | 00.00 - 99.99 | Yes |  |  |  |
|  | WAGE\_MEANA | Mean Annual Wage | Integer | 999999999 | 999999999 - 100000000 | Yes |  |  |  |
|  | WAGE\_MEDH | Hourly Median Wage (50th percentile) | Double | 99.99 | 00.00 - 99.99 | No |  |  |  |
|  | WAGE\_MEDA | Annual Median Wage (50th percentile) | Integer | 999999999 | 999999999 - 100000000 | No |  |  |  |
|  | PROF\_NUM | Profession ID | Integer | 999999999 | 999999999 - 100000000 | Yes | FK | PROFESSION |  |

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| Industry1 | FIND\_ID | Industry ID | Integer | 999999999 | 999999999 - 100000000 | Yes | PK |  | 80 |
|  | FIND\_NAME | Industry Name | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | Yes |  |  |  |
|  | FIND\_FIRST | Industry with the highest employment | Integer | 999999999 | 999999999 - 100000000 | Yes |  |  |  |
|  | FIND\_FHMW | Hourly Mean Wage for this industry | Double | 99.99 | 00.00 - 99.99 | No |  |  |  |
|  | FIND\_FAMW | Annual Mean Wage for this industry | Integer | 999999999 | 999999999 - 100000000 | No |  |  |  |
|  | PRO\_NUM | Profession ID | Integer | 999999999 | 999999999 - 100000000 | Yes | FK | PROFESSION |  |

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| Industry2 | SIND\_ID | Industry ID | Integer | 999999999 | 999999999 - 100000000 | Yes | PK |  | 80 |
|  | SIND\_NAME | Industry Name | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | Yes |  |  |  |
|  | SIND\_SCND | Industry with the second highest employment | Integer | 999999999 | 999999999 - 100000000 | Yes |  |  |  |
|  | SIND\_SHMW | Hourly Mean Wage for this industry | Double | 99.99 | 00.00 - 99.99 | No |  |  |  |
|  | SIND\_SAMW | Annual Mean Wage for this industry | Integer | 999999999 | 999999999 - 100000000 | No |  |  |  |
|  | PRO\_NUM | Profession ID | Integer | 999999999 | 999999999 - 100000000 | Yes | FK | PROFESSION |  |

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| Industry3 | TIND\_NUM | Industry ID | Integer | 999999999 | 999999999 - 100000000 | Yes | PK |  | 80 |
|  | TIND\_NAME | Industry Name | VarChar(30) | XXXXXXXXXX | Xxxxxxxxxxxxxxxxxxxxx | Yes |  |  |  |
|  | TIND\_THRD | Industry with the third highest employment | Integer | 999999999 | 999999999 - 100000000 | Yes |  |  |  |
|  | TIND\_THMW | Hourly Mean Wage for this industry | Double | 99.99 | 00.00 - 99.99 | No |  |  |  |
|  | TIND\_TAMW | Annual Mean Wage for this industry | Integer | 999999999 | 999999999 - 100000000 | No |  |  |  |
|  | PRO\_NUM | Profession ID | Integer | 999999999 | 999999999 - 100000000 | Yes | FK | PROFESSION |  |

* 1. **ER Diagram**:

