**CSE370 – Database Systems**

**Assignment 04**

**Spring 2023**

1. Consider the following relation:

Project\_Grade\_Upgraded(Project\_ID, Student\_ID, Student\_Name, Semester, Course, Section, Project\_Title, Grade, Submission, Bonus)

Additional dependencies are as below:

FD1 - Project\_ID -> Project\_Title

FD2 - Student\_ID -> Student\_Name, Semester

FD3 - Submission -> Bonus

FD4 - Course, Section -> Grade

Give reasons to explain if this is in 1NF or not. If not, decompose it to 1NF.

Give reasons to explain if this is in 2NF or not. If not, decompose it to 2NF.

Give reasons to explain if this is in 3NF or not. If not, decompose it to 3NF.



| **purchase\_id** | **role\_name** | **organization** | **unit\_cost** | **count** | **paid\_on** |
| --- | --- | --- | --- | --- | --- |
| p0109 | super\_admin | Amazon Web Services | 33.26 | 1850 | 2020-06-01 |
| p0110 | admin | Alibaba Cloud | 26.78 | 1600 | 2020-06-21 |
| p0111 | admin | Host Gator | 25.99 | 100 | 2020-06-21 |
| p0112 | auditor | Namecheap | 18.19 | 552 | 2020-06-30 |
| p0113 | super\_admin | Google Cloud | 32.98 | 2000 | 2020-07-07 |
| p0114 | auditor | Digital Ocean | 20.01 | 90 | 2020-07-15 |
| p0115 | super\_admin | Microsoft Azure | 33.85 | 1500 | 2020-07-16 |
| p0116 | auditor | Blue Host | 20.12 | 100 | 2020-07-27 |

Now write the SQL statement for the following questions.

1. Add two more rows with some relevant records.
2. Show the “amount” of each organization. (amount = unit\_cost\*10+count)
3. Find the “role\_name” and the “organization” if the ‘organization’ starts with “A” or ends with “d”.
4. Find the “purchase\_id” and “role\_name” if the “unit\_cost” is more than 30 and paid after June, 2020.
5. Select organization, count(\*) from Billing where count < 1000 group by role\_name.