**INFO 605 Term Project**

**Educational Database**

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# Requirements:

This is a system for storing standardized letters of recommendation to be used to send to universities for the purpose of graduate admission packets. Students, referred to as applicants, make an account, when they make an account an applicant ID is generated that uniquely refers to the email they used to make the account. When they make the account, they fill out their name (first, middle, and last names), social security number, what university are currently attending, if any, what their undergraduate major was, what year they graduated or will graduate from their undergraduate program, their birthdate, race/ethnicity, and address. Addresses include a street, city, state (or province), country, and zip code. Finally, they fill in their phone number.

Once registered, an applicant invites a rater to the system. This rater will fill out an evaluation for that application. Each applicant can invite as many raters as they want, and raters may be invited by multiple applicants, but each rater only makes one account linked to an email address. When they make the account, they fill in their first, middle, and last name as well as their address. Similar to the applicants, the address accounts for a street address, city, state or province, country, and zip. They also fill in their department affiliation and organization name, if any as well as their title.

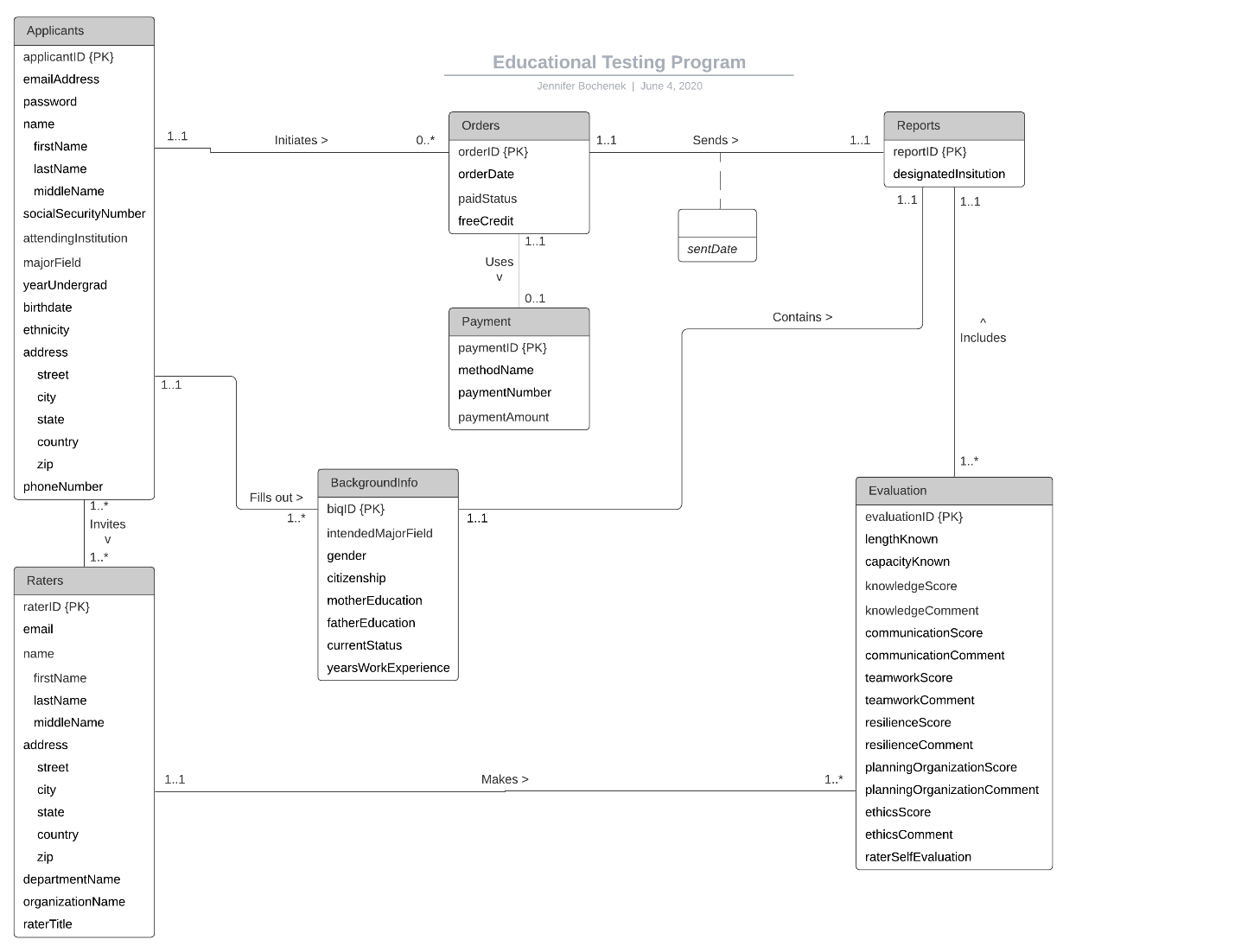
Each invitation results in an evaluation, this evaluation is identified by the evaluation ID. In this evaluation, the rater declares how long they’ve known the applicant, and in what capacity they know them (such as teacher-student, mentor, employer, coworker, family connection), and then they provide scores on a 1 to 10 basis (with 10 being the best) for applicant’s skill in content knowledge, communication, teamwork, resilience, planning and organization, and ethics. Evaluations can also include text, similar to a letter of recommendation, for each of those domains. Finally, raters are asked to provide how strict or lenient they were for this evaluation with 1 being most lenient and 10 being most strict.

When an applicant wants to send out a report to schools, they have to do several things. The first is fill out a background information questionnaire [BIQ]. This BIQ includes questions that are most likely to change over time, and thus are only triggered to be answered when an applicant wants to send out a report. Thus an applicant may answer the BIQ multiple times. Each BIQ response is identified by a unique BIQ ID. Then applicants fill in their intended major, their gender, citizenship, their mother(s)’ and father(s)’ education, current status (in school, graduated, etc.), and how many years of work experience they have.

The second thing they is initiate an order. An applicant can initiate multiple orders, the first 5 are free, each order is specific a report. Orders are identified by an order ID, with an associated order date, payment status, and if it is one of the free credits, if it is not a free report, then payment must be rendered. Payment is determined by paymentID, how payment was rendered (paypal, credit or debit card, bank transfer), the payment number (card number, or bank account, etc) and how much was due. Once paid, an order is sent to the designated institution. The date that the report is sent is recorded.

Each report has a report ID and includes the selected evaluations, the associated BIQ responses, the applicant information and the rater information that is pertinent. Each report is sent to only one designated institution.

# ER Model:



1. **Database Schema:**

. Note: zip codes were not translated to 3rd normal form due to zip codes not following state lines. I could not find any other dependencies in my data.

1. Applicants(applicantID, emailAddress, password, firstName, lastName, middleName, socialSecurityNumber, attendingInstitution, majorField, yearUndergrad, birthdate, ethnicity, street, city, state, country, zip, phonenumber)
2. BackgroundInfo(biqID, intendedMajorField, gender, citizenship, motherEducation, fatherEducation, currentStatus, yearsWorkExperience, applicantID)
3. Invites(applicantID, raterID, evaluationID)
4. Raters(raterID, firstName, lastName, middleName, street, city, state, country, zip, departmentName, organizationName, raterTitle)
5. Evaluations(evaluationID, lengthKnown, capacityKnown, knowledgeScore, knowledgeComment, communicationScore, communcationComment, teamworkScore, teamworkComment, resilienceScore, resilienceComment, planningOrganizationScore, planningOrganizationComment, ethicsScore, ethicsComment, raterSelfEvaluation, raterID, reportID)
6. Orders(orderID, orderDate, paidStatus, freeCredit, paymentID, reportID)
7. Payment(paymentID, methodName, paymentNumber, paymentAmount)
8. Sends(orderID, reportID, sentDate)
9. Reports(reportID. designatedInstitution, biqID)

# Data Dictionary:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Applicants: Gives static information about the students in the system. | | | | | | |
| Attribute Name | Description | Datatype | Domain | Nullable | PK | FK |
| APPLICANTID | ID of applicant | NUMBER(8,0) | 00000000-99999999 | No | Yes | No |
| EMAILADDRESS | email address | VARCHAR2(50) | All | No | No | No |
| FIRSTNAME | first name of applicant | VARCHAR2(20) | All | No | No | No |
| LASTNAME | last name of applicant | VARCHAR2(20) | All | No | No | No |
| MIDDLENAME | middle name of applicant | VARCHAR2(8) | All | Yes | No | No |
| ATTENDINGINSTITUTION | name of undergraduate or previous institution | VARCHAR2(50) | All | Yes | No | No |
| MAJORFIELD | Undergraduate major or field of schooling | VARCHAR2(50) | All | Yes | No | No |
| YEARUNDERGRAD | What year they graduated from Undergraduate school | NUMBER(4,0) | 0000-9999 | Yes | No | No |
| BIRTHDATE | date of birth | DATE | Any | Yes | No | No |
| ETHNICITY | race/ethnicity | VARCHAR2(20) | All | Yes | No | No |
| STREET | street address | VARCHAR2(50) | All | No | No | No |
| CITY | city name | VARCHAR2(50) | All | No | No | No |
| ST\_PROV | state or province name | VARCHAR2(50) | All | No | No | No |
| COUNTRY | country name | VARCHAR2(50) | All | Yes | No | No |
| ZIP | zip code | VARCHAR2(50) | All | Yes | No | No |
| PHONENUMBER | phone number of applicant | VARCHAR2(15) | All | Yes | No | No |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Background: Stores information that changes more often than information in applicant table. Is filled out when applicants issue an order for a report. | | | | | | |
| Attribute Name | Description | Datatype | Domain | Nullable | PK | FK |
| BIQID | ID for BIQ | NUMBER(8,0) | 00000000-99999999 | No | Yes | No |
| INTENDEDMAJORFIELD | Intended Graduate Major Field | VARCHAR2(50) | All | Yes | No | No |
| GENDER | Gender | VARCHAR2(10) | All | No | No | No |
| CITIZENSHIP | Citizenship | VARCHAR2(50) | All | Yes | No | No |
| MOTHERED | Highest education level for the applicant's mother | VARCHAR2(20) | All | Yes | No | No |
| FATHERED | Highest education level for the applicant's father | VARCHAR2(20) | All | Yes | No | No |
| CURRENTSTAT | The current enrollement status of the applicant | VARCHAR2(15) | All | No | No | No |
| YEARSWORKEXPERIENCE | how many years worth of relevant work experience the applicant has | NUMBER(3,0) | 000-999 | No | No | No |
| APPLICANTID | ID for Applicant | NUMBER(8,0) | 00000000-99999999 | No | No | Yes |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Evaluations: Contains evaluations which are made by raters about applicants | | | | | | |
| Attribute Name | Description | Datatype | Domain | Nullable | PK | FK |
| EVALUATIONID | ID for the Evaluation | NUMBER(8,0) | 00000000-99999999 | No | Yes | No |
| LENGTHKNOWN | How long the Rater has known the Applicant | VARCHAR2(15) | All | No | No | No |
| CAPACITYKNOWN | In what capacity the Rater knows the Applicant | VARCHAR2(15) | All | No | No | No |
| KNOWLEDGESCORE | Score from 1-10 on Applicant's knowledge skills | NUMBER(2,0) | 1-10 | No | No | No |
| KNOWLEDGECOMMENT | Rater comments on Applicant's knowledge skill | VARCHAR2(1000) | All | Yes | No | No |
| COMMUNICATIONSCORE | Score from 1-10 on Applicant's communication skills | NUMBER(2,0) | 1-10 | No | No | No |
| COMMUNICATIONCOMMENT | Rater comments on Applicant's communication skill | VARCHAR2(1000) | All | Yes | No | No |
| TEAMWORKSCORE | Score from 1-10 on Applicant's teamwork skills | NUMBER(2,0) | 1-10 | No | No | No |
| TEAMWORKCOMMENT | Rater comments on Applicant's teamwork skill | VARCHAR2(1000) | All | Yes | No | No |
| RESILIENCESCORE | Score from 1-10 on Applicant's resilience skills | NUMBER(2,0) | 1-10 | No | No | No |
| RESILIENCECOMMENT | Rater comments on Applicant's resilience skill | VARCHAR2(1000) | All | Yes | No | No |
| PLANNINGORGANIZATIONSCORE | Score from 1-10 on Applicant's planning & organization skills | NUMBER(2,0) | 1-10 | No | No | No |
| PLANNINGORGANIZATIONCOMMENT | Rater comments on Applicant's planning & organization skill | VARCHAR2(1000) | All | Yes | No | No |
| ETHICSSCORE | Score from 1-10 on Applicant's ethics skills | NUMBER(2,0) | 1-10 | No | No | No |
| ETHICSCOMMENT | Rater comments on Applicant's ethics skill | VARCHAR2(1000) | All | Yes | No | No |
| RATERSELFEVALUATION | A self evaluation of how strict or lenient the rater percieves themselves to be | NUMBER(10,0) | 0000000000-9999999999 | No | No | No |
| RATERID | ID for rater | NUMBER(8,0) | 00000000-99999999 | No | No | Yes |
| REPORTID | ID for report that this evaluation ends up on | NUMBER(8,0) | 00000000-99999999 | Yes | No | Yes |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Invites: A record of what applicants invited what raters and the resultant evaluations | | | | | | |
| Attribute Name | Description | Datatype | Domain | Nullable | PK | FK |
| APPLICANTID | ID for applicant | NUMBER(8,0) | 00000000-99999999 | No | No | Yes |
| RATERID | ID for rater | NUMBER(8,0) | 00000000-99999999 | No | No | Yes |
| EVALUATIONID | ID for the evaluation that is associated with the applicant and rater | NUMBER(8,0) | 00000000-99999999 | No | No | Yes |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Orders: Contains information about orders that are initiated by applicants for the purpose of sending reports | | | | | | |
| Attribute Name | Description | Datatype | Domain | Nullable | PK | FK |
| ORDERID | ID for order | NUMBER(8,0) | 00000000-99999999 | No | Yes | No |
| ORDERDATE | Date the order was initiated by the participant | DATE | SYSDATE | Yes | No | No |
| PAIDSTATUS | Whether or not the order was paid | VARCHAR2(1) | Y, N, P | No | No | No |
| FREECREDIT | Whether the applicant used one of the 4 free credits | VARCHAR2(1) | Y, N | No | No | No |
| PAYMENTID | ID for the payment | NUMBER(8,0) | 00000000-99999999 | Yes | No | Yes |
| REPORTID | ID for the report that was issued as a result of this order | NUMBER(8,0) | 00000000-99999999 | No | No | Yes |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Payment: Contains payment information, may not be used if a free credit was used | | | | | | |
| Attribute Name | Description | Datatype | Domain | Nullable | PK | FK |
| PAYMENTID | ID of the payment | NUMBER(8,0) | 00000000-99999999 | No | Yes | No |
| METHODNAME | name of the method of payment | VARCHAR2(15) | All | No | No | No |
| PAYMENTNUMBER | number associated with the method of payment (e.g., credit/debit card number, paypal invoice, bank transfer number) | NUMBER(20,0) | 00000000000000000000-99999999999999999999 | No | No | No |
| PAYMENTAMOUNT | Amount to be paid | NUMBER(3,0) | 000-999 | No | No | No |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Raters: Contains information about the raters, who are invited by the applicants to give evaluations | | | | | | |
| Attribute Name | Description | Datatype | Domain | Nullable | PK | FK |
| RATERID | ID of rater | NUMBER(8,0) | 00000000-99999999 | No | Yes | No |
| FIRSTNAME | first name of rater | VARCHAR2(20) | All | No | No | No |
| LASTNAME | last name of rater | VARCHAR2(20) | All | No | No | No |
| MIDDLENAME | middle name of rater | VARCHAR2(10) | All | Yes | No | No |
| STREET | Street address of rater | VARCHAR2(50) | All | No | No | No |
| CITY | City of rater | VARCHAR2(50) | All | No | No | No |
| ST\_PROV | State or Province of rater | VARCHAR2(50) | All | No | No | No |
| COUNTRY | Country of rater | VARCHAR2(50) | All | Yes | No | No |
| ZIP | Zip Code of Rater | VARCHAR2(10) | All | Yes | No | No |
| DEPARTMENTNAME | Rater's Department name | VARCHAR2(50) | All | No | No | No |
| ORGANIZATIONNAME | Rater's Organization name | VARCHAR2(50) | All | No | No | No |
| RATERTITLE | Title of Rater | VARCHAR2(50) | All | No | No | No |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Reports: Contains information about the report and what it's associated BIQ is | | | | | | |
| Attribute Name | Description | Datatype | Domain | Nullable | PK | FK |
| REPORTID | ID of Report | NUMBER(8,0) | 00000000-99999999 | No | Yes | No |
| DESIGNATEDINSTITUTION | Name of the Institution it is being sent to | VARCHAR2(50) | All | Yes | No | No |
| BIQID | ID of BIQ | NUMBER(8,0) | 00000000-99999999 | Yes | No | Yes |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sends: The relationship between orders and reports that includes the date when the report was sent | | | | | | |
| Attribute Name | Description | Datatype | Domain | Nullable | PK | FK |
| ORDERID | ID for the order | NUMBER(8,0) | 00000000-99999999 | No | No | Yes |
| REPORTID | ID of Report | NUMBER(8,0) | 00000000-99999999 | No | No | Yes |
| SENTDATE | the date that the report was sent | DATE | SYSDATE | Yes | No | No |

# DDL:

CREATE TABLE Applicant

(

applicantID NUMBER(8)

CONSTRAINT appplicant\_pk PRIMARY KEY,

emailAddress VARCHAR2(50)

CONSTRAINT applicant\_nn\_email NOT NULL,

pword VARCHAR2(16)

CONSTRAINT applicant\_nn\_password NOT NULL, -- renamed password to pword because password was protected word

firstName VARCHAR2(20)

CONSTRAINT applicant\_nn\_firstname NOT NULL,

lastName VARCHAR2(20)

CONSTRAINT applicant\_nn\_lastname NOT NULL,

middleName VARCHAR2(8), -- can be null because some people don't have middle names

socialSecurityNumber VARCHAR2(20)

CONSTRAINT applicant\_uq\_ssn UNIQUE, -- must be unique

attendingInstitution VARCHAR2(50),

majorField VARCHAR2(50),

yearUndergrad NUMBER(4)

CONSTRAINT applicant\_ck\_year CHECK(yearUndergrad > 1900),

birthdate DATE,

ethnicity VARCHAR2(20),

street VARCHAR2(50)

CONSTRAINT applicant\_nn\_street NOT NULL,

city VARCHAR2(50)

CONSTRAINT applicant\_nn\_city NOT NULL,

st\_prov VARCHAR2(50)

CONSTRAINT applicant\_nn\_state NOT NULL, -- state changed to st\_prov

country VARCHAR2(50),

zip VARCHAR2(50),

phoneNumber VARCHAR2(15)

);

--Background

CREATE TABLE Background

(

biqID NUMBER(8)

CONSTRAINT background\_pk PRIMARY KEY,

intendedMajorField VARCHAR2(50),

gender VARCHAR2(10)

CONSTRAINT background\_nn\_gender NOT NULL,

citizenship VARCHAR2(50),

motherEd VARCHAR2(20), -- can be null, not everyone has a mother in their lives

fatherEd VARCHAR2(20), -- can be null, not everyone has a father in their lives

currentStat VARCHAR2(15)

CONSTRAINT background\_nn\_currentStatus NOT NULL,

yearsWorkExperience NUMBER(3)

CONSTRAINT background\_nn\_yearsWorkExperience NOT NULL

CONSTRAINT background\_ck\_yearsWorkExperience CHECK(yearsWorkExperience BETWEEN 0 and 125),

applicantID NUMBER(8)

CONSTRAINT background\_fk\_applicantID REFERENCES Applicant(applicantID) ON DELETE CASCADE

CONSTRAINT background\_nn\_applicantID NOT NULL

);

--Raters

CREATE TABLE Raters

(

raterID NUMBER(8)

CONSTRAINT rater\_pk PRIMARY KEY,

firstName VARCHAR2(20)

CONSTRAINT rater\_nn\_firstname NOT NULL,

lastName VARCHAR2(20)

CONSTRAINT rater\_nn\_lastname NOT NULL,

middleName VARCHAR2(10), -- can be null because some people don't have middle names

street VARCHAR2(50)

CONSTRAINT rater\_nn\_street NOT NULL,

city VARCHAR2(50)

CONSTRAINT rater\_nn\_city NOT NULL,

st\_prov VARCHAR2(50)

CONSTRAINT rater\_nn\_state NOT NULL, -- state changed to st\_prov

country VARCHAR2(50),

zip VARCHAR2(10),

departmentName VARCHAR2(50)

CONSTRAINT rater\_nn\_department NOT NULL,

organizationName VARCHAR2(50)

CONSTRAINT rater\_nn\_organization NOT NULL,

raterTitle VARCHAR2(50)

CONSTRAINT rater\_nn\_title NOT NULL

);

--Reports

CREATE TABLE Reports

(

reportID NUMBER(8)

CONSTRAINT reports\_pk PRIMARY KEY,

designatedInstitution VARCHAR2(50),

biqID NUMBER(8)

CONSTRAINT reports\_fk\_biq REFERENCES Background(biqID) ON DELETE SET NULL

);

--Evaluations

CREATE TABLE Evaluations

(

evaluationID NUMBER(8)

CONSTRAINT evaluations\_pk PRIMARY KEY,

lengthKnown VARCHAR2(15)

CONSTRAINT evaluations\_nn\_lengthknown NOT NULL,

capacityKnown VARCHAR2(15)

CONSTRAINT evaluations\_nn\_capacityknown NOT NULL,

knowledgeScore NUMBER(2)

CONSTRAINT evaluations\_nn\_knowledgescore NOT NULL

CONSTRAINT evaluations\_ch\_knowledgescore CHECK(knowledgeScore BETWEEN 1 AND 10),

knowledgeComment VARCHAR2(1000),

communicationScore NUMBER(2)

CONSTRAINT evaluations\_nn\_communicationscore NOT NULL

CONSTRAINT evaluations\_ck\_communicationscore CHECK(communicationScore BETWEEN 1 AND 10),

communicationComment VARCHAR2(1000),

teamworkScore NUMBER(2)

CONSTRAINT evaluations\_nn\_teamworkscore NOT NULL

CONSTRAINT evaluations\_ck\_teamworkscore CHECK(teamworkScore BETWEEN 1 AND 10),

teamworkComment VARCHAR2(1000),

resilienceScore NUMBER(2)

CONSTRAINT evaluations\_nn\_resiliencescore NOT NULL

CONSTRAINT evaluations\_ck\_resiliencescore CHECK(resilienceScore BETWEEN 1 AND 10),

resilienceComment VARCHAR2(1000),

planningOrganizationScore NUMBER(2)

CONSTRAINT evaluations\_nn\_planningorganizationscore NOT NULL

CONSTRAINT evaluations\_ck\_planningorganizationscore CHECK(planningOrganizationScore BETWEEN 1 AND 10),

planningOrganizationComment VARCHAR2(1000),

ethicsScore NUMBER(2)

CONSTRAINT evaluations\_nn\_ethicsscore NOT NULL

CONSTRAINT evaluations\_ck\_ethicsscore CHECK(ethicsScore BETWEEN 1 AND 10),

ethicsComment VARCHAR2(1000),

raterSelfEvaluation NUMBER(10)

CONSTRAINT evaluations\_nn\_selfeval NOT NULL,

CONSTRAINT evaluations\_ck\_selfeval CHECK(raterSelfEvaluation BETWEEN 1 AND 10),

raterID NUMBER(8)

CONSTRAINT evaluations\_fk\_raterID REFERENCES Raters(raterID)

CONSTRAINT evaluations\_nn\_raterID NOT NULL,

reportID NUMBER(8)

CONSTRAINT evaluations\_fk\_reportID REFERENCES Reports(reportID)

);

--Invites

CREATE TABLE Invites

(

applicantID NUMBER(8)

CONSTRAINT invites\_fk\_applicantID REFERENCES Applicant(applicantID) ON DELETE SET NULL,

raterID NUMBER(8)

CONSTRAINT invites\_fk\_raterID REFERENCES Raters(raterID) ON DELETE SET NULL,

evaluationID NUMBER(8)

CONSTRAINT invites\_fk\_evaluationID REFERENCES Evaluations(evaluationID) ON DELETE SET NULL

);

--Payment

CREATE TABLE Payment

(

paymentID NUMBER(8)

CONSTRAINT payment\_pk PRIMARY KEY,

methodName VARCHAR2(15)

CONSTRAINT payment\_nn\_methodname NOT NULL,

paymentNumber NUMBER(20)

CONSTRAINT payment\_nn\_paymentNumber NOT NULL,

paymentAmount NUMBER(3)

CONSTRAINT payment\_nn\_paymentamount NOT NULL

);

--Orders

CREATE TABLE Orders

(

orderID NUMBER(8)

CONSTRAINT order\_pk PRIMARY KEY,

orderDate DATE DEFAULT SYSDATE,

paidStatus VARCHAR2(1)

CONSTRAINT orders\_nn\_paid NOT NULL

CONSTRAINT orders\_ck\_paid CHECK(paidStatus IN ('Y','N','P')), -- yes, no, and pending

freeCredit VARCHAR2(1)

CONSTRAINT orders\_nn\_free NOT NULL

CONSTRAINT orders\_ck\_free CHECK(freeCredit IN ('Y','N')), -- yes, no

paymentID NUMBER(8)

CONSTRAINT orders\_fk\_paymentID REFERENCES Payment(paymentID),

reportID NUMBER(8)

CONSTRAINT orders\_fk\_reportID REFERENCES Reports(reportID)

CONSTRAINT orders\_nn\_reportID NOT NULL

);

--Sends

CREATE TABLE Sends

(

orderID NUMBER(8)

CONSTRAINT sends\_fk\_orderid REFERENCES Orders(orderID)

CONSTRAINT sends\_nn\_orderid NOT NULL,

reportID NUMBER(8)

CONSTRAINT sends\_fk\_reportid REFERENCES Reports(reportID)

CONSTRAINT sends\_nn\_reportid NOT NULL,

sentDate DATE DEFAULT SYSDATE

);

# DML:

--Applicant

INSERT INTO Applicant(APPLICANTID, EMAILADDRESS,PWORD, FIRSTNAME, LASTNAME,

SOCIALSECURITYNUMBER, ATTENDINGINSTITUTION, MAJORFIELD, YEARUNDERGRAD, BIRTHDATE,

ETHNICITY, STREET, CITY, ST\_PROV, COUNTRY, ZIP, PHONENUMBER)

VALUES('10000001', 'doe@john.net', 'p@ssword!', 'john', 'doe', '888888888','Butler University','Cell/Cellular Biology','2006',

TO\_DATE('1987/10/01', 'yyyy/mm/dd'),'White', '123 Memory Lane', 'Carmel', 'IN', 'USA', '146032', '12341888');

INSERT INTO Applicant(APPLICANTID, EMAILADDRESS,PWORD, FIRSTNAME, LASTNAME, MIDDLENAME,

SOCIALSECURITYNUMBER, ATTENDINGINSTITUTION, MAJORFIELD, YEARUNDERGRAD, BIRTHDATE,

ETHNICITY, STREET, CITY, ST\_PROV, COUNTRY, ZIP, PHONENUMBER)

VALUES('10000002', 'amelialovescats@domain.co.uk', 'catscatscats!', 'Amelia', 'Monroe', 'Claire', '929922','Kings College London',

'Data Processing','2011', TO\_DATE('1999/12/31', 'yyyy/mm/dd'),'Hispanic', 'The Hallows', 'Badgers Drift',

'Midsomer', 'UK', '3456', '442343488');

INSERT INTO Applicant(APPLICANTID, EMAILADDRESS,PWORD, FIRSTNAME, LASTNAME, MIDDLENAME,

SOCIALSECURITYNUMBER, ATTENDINGINSTITUTION, MAJORFIELD, YEARUNDERGRAD, BIRTHDATE,

ETHNICITY, STREET, CITY, ST\_PROV, COUNTRY, ZIP, PHONENUMBER)

VALUES('10000003', 'gangnamstyle@korea.com', 'knock42!', 'MinWoo', 'Ma', '', '123412123', 'Seoul National University',

'Parks and Recreation Management','2019', TO\_DATE('1995/09/01', 'yyyy/mm/dd'),'Asian',

'Sajik-ro-3-gil 23', 'Seoul', 'Jongno-gu', 'Korea, Republic of', '', '8399320322');

INSERT INTO Applicant(APPLICANTID, EMAILADDRESS,PWORD, FIRSTNAME, LASTNAME, MIDDLENAME,

SOCIALSECURITYNUMBER, ATTENDINGINSTITUTION, MAJORFIELD, YEARUNDERGRAD, BIRTHDATE,

ETHNICITY, STREET, CITY, ST\_PROV, COUNTRY, ZIP, PHONENUMBER)

VALUES('10000004', 'fakenews@tt.co.cn', 'oranges!', 'Don', 'Trumps', 'Walter', '000000000', 'Rutgers University',

'Unethical Business','1984', TO\_DATE('1955/01/31', 'yyyy/mm/dd'),'White',

'White House', 'Washington DC', 'Washington DC', 'USA', '222222', '12224444');

--Background

INSERT INTO Background( biqid, intendedmajorfield, gender, citizenship, mothered,

fathered, currentstat, yearsworkexperience, applicantid)

VALUES('111','Pharmacology', 'male', 'USA', 'Some College', 'Masters Degree', 'Graduated', '10', '10000001');

INSERT INTO Background( biqid, intendedmajorfield, gender, citizenship, mothered,

fathered, currentstat, yearsworkexperience, applicantid)

VALUES('112','Cell Biology', 'trans', 'UK', 'Professional Degree', 'Professional Degree', 'Senior', '0', '10000002');

INSERT INTO Background( biqid, intendedmajorfield, gender, citizenship, mothered,

fathered, currentstat, yearsworkexperience, applicantid)

VALUES('113','Geological Sciences', 'male', 'Korea, Republic of', 'Bachelors Degree', 'Highschool', 'Graduated', '1', '10000003');

INSERT INTO Background( biqid, intendedmajorfield, gender, citizenship, mothered,

fathered, currentstat, yearsworkexperience, applicantid)

VALUES('114','Geology', 'male', 'Korea, Republic of', 'Bachelors Degree', 'Some College', 'Graduated', '2', '10000003');

INSERT INTO Background( biqid, intendedmajorfield, gender, citizenship, mothered,

fathered, currentstat, yearsworkexperience, applicantid)

VALUES('193','Presidency', 'male', 'USA', 'Less than Highschool', 'Highschool', 'Graduated', '40', '10000004');

commit;

--Raters

INSERT INTO Raters( raterid, firstname, lastname,middlename, street, city, st\_prov,

country, zip, departmentname, organizationname, ratertitle)

VALUES('12344', 'Sarah', 'Smith', 'Shannon', '173 Washington St', 'Bristol', 'PA', 'USA', '19007',

'Academic to Career Research', 'Educational Testing Service', 'Miss');

INSERT INTO Raters( raterid, firstname, lastname,middlename, street, city, st\_prov,

country, zip, departmentname, organizationname, ratertitle)

VALUES('121111', 'Feargal', 'Javert', 'Jean', '122 Hippopottami Way', 'Bristol', 'England', 'UK', '',

'Computer Science', 'University of Bristol', 'Dr');

INSERT INTO Raters( raterid, firstname, lastname,middlename, street, city, st\_prov,

country, zip, departmentname, organizationname, ratertitle)

VALUES('121122', 'Kyle ', 'Purcell', 'Joyce', '607 Fawn St.', 'Liverpool', 'England', 'UK', '',

'Computer Science', 'University of Liverpool', 'Dr');

INSERT INTO Raters( raterid, firstname, lastname,middlename, street, city, st\_prov,

country, zip, departmentname, organizationname, ratertitle)

VALUES('12223', 'In-Soon', 'Kim', '', '271-5, Junggog 4(sa)-dong', 'Gwangjin-gu', 'Seoul', 'Korea, Republic of', '',

'Seoul Branch', 'National Park Service', 'Mrs');

INSERT INTO Raters( raterid, firstname, lastname,middlename, street, city, st\_prov,

country, zip, departmentname, organizationname, ratertitle)

VALUES('1123', 'Jun-Ho', 'Ya', '', '276-6, Kkachiapateu, Namsan 4(sa)-dong', 'Jung-gu', 'Daegu', 'Korea, Republic of', '',

'Daegu Branch', 'National Park Service', 'Mrs');

INSERT INTO Raters( raterid, firstname, lastname,middlename, street, city, st\_prov,

country, zip, departmentname, organizationname, ratertitle)

VALUES('1883', 'Kwang', 'Si', 'Seon', ' 336-2, Ahyeon-dong', 'Mapo-gu', 'Seoul', 'Korea, Republic of', '',

'Limb Removal', 'Si Tree Service', 'Mr');

INSERT INTO Raters( raterid, firstname, lastname,middlename, street, city, st\_prov,

country, zip, departmentname, organizationname, ratertitle)

VALUES('13454', 'Adeline', 'Gunn', 'Joni', '59 Constitution Court', 'Lindenhurst', 'NY', 'USA', '11757',

'Client Relations', 'Department of Corrections', 'Miss');

INSERT INTO Raters( raterid, firstname, lastname,middlename, street, city, st\_prov,

country, zip, departmentname, organizationname, ratertitle)

VALUES('123564', 'Manuel', 'Beltran', 'Idris', '767 S. Fawn Circle', 'Liverpool', 'NY', 'USA', '13090',

'Inmate Management', 'Federal Prisons', 'Miss');

--Reports

INSERT INTO Reports(reportid, designatedinstitution, biqid)

values('234','Purdue University','111');

INSERT INTO Reports(reportid, designatedinstitution, biqid)

values('235','University of Florida','112');

INSERT INTO Reports(reportid, designatedinstitution, biqid)

values('887','National University of Singapore','113');

INSERT INTO Reports(reportid, designatedinstitution, biqid)

values('888','National University of Singapore','114');

INSERT INTO Reports(reportid, designatedinstitution, biqid)

values('8900','American University','193');

commit;

--Evaluations

INSERT INTO EVALUATIONS( evaluationid, lengthknown, capacityknown, knowledgescore, knowledgecomment, communicationscore,

communicationcomment, teamworkscore, teamworkcomment, resiliencescore, resiliencecomment, planningorganizationscore,

planningorganizationcomment, ethicsscore, ethicscomment, raterselfevaluation, raterid, reportid)

VALUES('345', '4 years', 'Coworker', '10', 'If John does not know something, he always knows where to look for it', '9',

'John is a gifted communicator and always brings clarity to projects when there is any point of confusion', '8',

'John is a delight to work with, but can be a bit assertive', '10', 'John never gives up, he is like a dog with a bone who

also has lockjaw', '5', 'While he is not an absolute disaster when it comes to organizing, I also cannot say he is particularly

gifted in this area', '10', 'I have never known John to do anything less than by the book', '10', '12344', '234');

INSERT INTO EVALUATIONS( evaluationid, lengthknown, capacityknown, knowledgescore, knowledgecomment, communicationscore,

communicationcomment, teamworkscore, teamworkcomment, resiliencescore, resiliencecomment, planningorganizationscore,

planningorganizationcomment, ethicsscore, ethicscomment, raterselfevaluation, raterid, reportid)

VALUES('397', '2 years', 'Professor', '8', 'While not a shining star in the classroom, I have never doubted their work', '6',

'They are not the best communicator, and sometimes struggle when it comes to things to say; however, their written communication

skills make up for it', '10', 'They are a great boon to any team they are part of, they work great with others and keep the team on track',

'3', 'When they encounter problems, they often give up rather than working through the problem. They often need coaxing to get past a small hurdle',

'10', 'They are very organized and often plan ahead, I have met few people as organized as them', '8',

'I do not believe they have ever turned in any work that was not their own, but one never knows', '6', '121111', '235');

INSERT INTO EVALUATIONS( evaluationid, lengthknown, capacityknown, knowledgescore, knowledgecomment, communicationscore,

communicationcomment, teamworkscore, teamworkcomment, resiliencescore, resiliencecomment, planningorganizationscore,

planningorganizationcomment, ethicsscore, ethicscomment, raterselfevaluation, raterid, reportid)

VALUES('398', '4 years', 'Professor', '8', 'They get good grades and their turned in work is quality that I have come to expect from them',

'5', 'Cannot evaluate', '5', 'Cannot evaluate', '3', 'Absolutely no grit', '9', 'Fairly well organized',

'8', 'Never caught them cheating', '6', '121122', '235');

INSERT INTO EVALUATIONS( evaluationid, lengthknown, capacityknown, knowledgescore, knowledgecomment, communicationscore,

communicationcomment, teamworkscore, teamworkcomment, resiliencescore, resiliencecomment, planningorganizationscore,

planningorganizationcomment, ethicsscore, ethicscomment, raterselfevaluation, raterid, reportid)

VALUES('399', '0 Years', 'None', '1', 'I do not even know this person',

'1', 'Cannot evaluate', '1', 'Cannot evaluate', '1', '', '1', '',

'1', '', '1', '121122', '8900');

INSERT INTO EVALUATIONS( evaluationid, lengthknown, capacityknown, knowledgescore, knowledgecomment, communicationscore,

communicationcomment, teamworkscore, teamworkcomment, resiliencescore, resiliencecomment, planningorganizationscore,

planningorganizationcomment, ethicsscore, ethicscomment, raterselfevaluation, raterid, reportid)

VALUES('123', '1 year', 'Intern Mentor', '9', 'Seems to know his work well', '10',

'Very polite and good to work with', '10', 'Excellent team player, always willing to do any task', '10',

'', '10', 'He organized our messy office for us, we were very blessed to have him', '10',

'Never had a complaint about his ethics', '10', '1123', '887');

INSERT INTO EVALUATIONS( evaluationid, lengthknown, capacityknown, knowledgescore, knowledgecomment, communicationscore,

communicationcomment, teamworkscore, teamworkcomment, resiliencescore, resiliencecomment, planningorganizationscore,

planningorganizationcomment, ethicsscore, ethicscomment, raterselfevaluation, raterid, reportid)

VALUES('124', '4 year', 'Employer', '10', 'Works hard for us every summer, knows his way around trees', '10',

'', '10', '', '10', '', '10', 'Very good at organizing', '10', '', '1', '1883', '887');

INSERT INTO EVALUATIONS( evaluationid, lengthknown, capacityknown, knowledgescore, knowledgecomment, communicationscore,

communicationcomment, teamworkscore, teamworkcomment, resiliencescore, resiliencecomment, planningorganizationscore,

planningorganizationcomment, ethicsscore, ethicscomment, raterselfevaluation, raterid, reportid)

VALUES('125', '1 year', 'Intern Mentor', '10', 'MinWoo is very knowledgable about how to manage the park service', '8',

'MinWoo was always able to get his point across and was polite and respectful in talking to superiors', '10',

'MinWoo is a hardworking teammate and was always willing to take on new tasks', '5',

'I cannot speak to this attribute, he worked fine on his internship', '8',

'He kept to the office organization scheme and his desk was never messy', '10',

'MinWoo is very ethical', '10', '12223', '888');

INSERT INTO EVALUATIONS( evaluationid, lengthknown, capacityknown, knowledgescore, knowledgecomment, communicationscore,

communicationcomment, teamworkscore, teamworkcomment, resiliencescore, resiliencecomment, planningorganizationscore,

planningorganizationcomment, ethicsscore, ethicscomment, raterselfevaluation, raterid,reportid)

VALUES('444', '6 year', 'Mentor', '5', 'Don seems like he knows some things', '4',

'Speach was often repetitive and confusing in front of the court', '3',

'Delegates and does not take responsibility', '8', 'He is very dogged', '5', 'No clue', '2',

'A known criminal', '10', '13454', '8900');

INSERT INTO EVALUATIONS( evaluationid, lengthknown, capacityknown, knowledgescore, knowledgecomment, communicationscore,

communicationcomment, teamworkscore, teamworkcomment, resiliencescore, resiliencecomment, planningorganizationscore,

planningorganizationcomment, ethicsscore, ethicscomment, raterselfevaluation, raterid, reportID)

VALUES('445', '6 year', 'Mentor', '8', 'Very knowlegeable about the ins and outs of prison life', '4',

'Seems pursuasive but his logic falls apart at the slightest hint of reason', '10',

'Got along well with fellow inmates', '5', '', '8', 'His cell was not messy', '5',

'No idea', '10', '123564', '8900');

--Payment

INSERT INTO Payment(paymentID, methodname, paymentnumber, paymentamount)

VALUES('1412', 'Paypal', '1232345234', '20');

INSERT INTO Payment(paymentID, methodname, paymentnumber, paymentamount)

VALUES('1337', 'Visa', '444444444444', '20');

INSERT INTO Payment(paymentID, methodname, paymentnumber, paymentamount)

VALUES('42', 'BankTransfer', '2345423234', '20');

INSERT INTO Payment(paymentID, methodname, paymentnumber, paymentamount)

VALUES('455', 'Credit', '00000000000', '20');

INSERT INTO Payment(paymentID, methodname, paymentnumber, paymentamount)

VALUES('459', 'Visa', '4433334565543', '20');

--Orders

INSERT INTO Orders(orderid, paidstatus, freecredit, paymentid, reportid)

VALUES('44', 'Y', 'N', '1412', '234');

INSERT INTO Orders(orderid, paidstatus, freecredit, paymentid, reportid)

VALUES('41', 'N', 'N', '1337', '235');

INSERT INTO Orders(orderid, paidstatus, freecredit, paymentid, reportid)

VALUES('49', 'P', 'N', '42', '887');

INSERT INTO Orders(orderid, paidstatus, freecredit, paymentid, reportid)

VALUES('50', 'Y', 'Y', '455', '888');

INSERT INTO Orders(orderid, paidstatus, freecredit, paymentid, reportid)

VALUES('66', 'N', 'N', '459', '8900');

--INVITES

INSERT INTO Invites(applicantid, raterid, evaluationid)

VALUES('10000001', '12344','345');

INSERT INTO Invites(applicantid, raterid, evaluationid)

VALUES('10000002', '121111','397');

INSERT INTO Invites(applicantid, raterid, evaluationid)

VALUES('10000003','12223','125');

INSERT INTO Invites(applicantid, raterid, evaluationid)

VALUES('10000004','121122','398');

INSERT INTO Invites(applicantid, raterid, evaluationid)

VALUES('10000003','121122','399');

INSERT INTO Invites(applicantid, raterid, evaluationid)

VALUES('10000003','1883','124');

INSERT INTO Invites(applicantid, raterid, evaluationid)

VALUES('10000003','1123','123');

INSERT INTO Invites(applicantid, raterid, evaluationid)

VALUES('10000004','13454','444');

INSERT INTO Invites(applicantid, raterid, evaluationid)

VALUES('10000004','123564','445');

--SENDS

INSERT INTO Sends(orderid, reportid)

VALUES('44', '234');

INSERT INTO Sends(orderid, reportid)

VALUES('41', '235');

INSERT INTO Sends(orderid, reportid)

VALUES('49', '887');

INSERT INTO Sends(orderid, reportid)

VALUES('50', '888');

INSERT INTO Sends(orderid, reportid)

VALUES('66', '8900');

commit;

1. **Queries:** 
   * + 1. The first query is to show what a standardized letter of recommendation report might look like to the designated universities.

alter table applicant modify pword INVISIBLE;

alter table applicant modify socialsecuritynumber INVISIBLE;

SELECT \*

FROM applicant p JOIN

(background b JOIN

(reports r JOIN

(evaluations e JOIN raters a

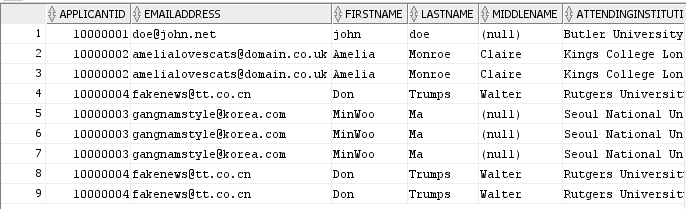
ON a.raterid = e.raterid)

ON r.reportID = e.reportID)

ON r.biqID=b.biqid)

ON p.applicantID = b.applicantID;

Too large to screencap…



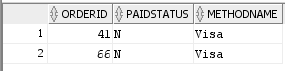
* + - 1. Are there payment methods that often result in unpaid orders?

SELECT orderid, Paidstatus, methodname

FROM orders o , payment p

WHERE paidstatus = 'N'

AND p.paymentid=o.paymentid;



Never trust credit…

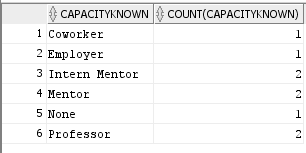
* + - 1. What are the types of relationships between raters and those being rated?

SELECT capacityknown, count(capacityknown)

FROM evaluations

GROUP BY capacityknown

ORDER BY capacityknown ASC;



* + - 1. Compute an overall score (average of the 6 scores) and display it by applicant.

SELECT (AVG(knowledgescore)+ AVG(communicationscore)+ AVG(teamworkscore) + AVG(resiliencescore) +

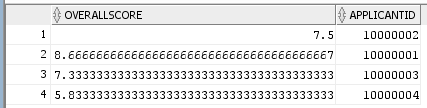
AVG(planningorganizationscore) + AVG(ethicsscore))/6

AS overallscore, applicantid

FROM evaluations e, invites i

WHERE e.evaluationid = i.evaluationid

GROUP BY applicantid;



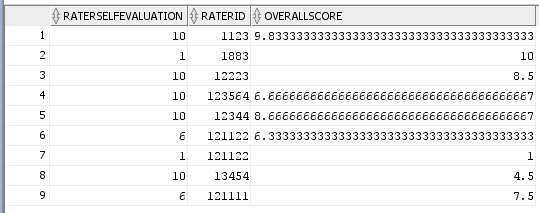
* + - 1. Are raters accurate in their self evaluations of their rating leniency? (10 being most strict and 1 being most lenient)

Select raterselfevaluation, raterid,

(avg(knowledgescore)+ avg(communicationscore)+ avg(teamworkscore)+ avg(resiliencescore) + avg(planningorganizationscore) + avg(ethicsscore))/6 as overallscore

from evaluations

group by raterselfevaluation, raterid;

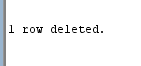


Answer: Depends on the rater.

* + - 1. If someone wants to delete their account:

DELETE FROM Applicant

WHERE ApplicantID = '10000002';

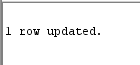


* + - 1. If someone wants to change their password:

UPDATE Applicant

SET Pword = 'help'

WHERE ApplicantID = '10000004';



* + - 1. And, finally, the ultimate goodbye:

drop table applicant cascade constraints purge;

drop table background cascade constraints purge;

drop table evaluations cascade constraints purge;

drop table invites cascade constraints purge;

drop table orders cascade constraints purge;

drop table payment cascade constraints purge;

drop table raters cascade constraints purge;

drop table reports cascade constraints purge;

drop table sends cascade constraints purge;

