A picture containing funnel chart

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**APT 1050 – DATABASE SYSTEMS**

**SPRING SEMESTER 2023**

**Instructor: Elisha Omulo**

**NATIONAL GENDER AFFRIMING MONITORING**

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1. **Objectives**

To develop a database system that provides the capability to monitor, observe and implement fairness in opportunities when it comes to allocating resources towards people. Ensuring that these resources are distributed fairly among genders.

2.0 INTRODUCTION

To accomplish the objectives above, our team sampled various areas across 10 counties in Kenya. These key areas include Employment and Education. In education our team collected samples in respect to the school, number of graduates, GPA, and number of students. While in employment we took samples of the company, salary, job descriptions and number of employees. All these samples are then taken to compare the male and female numbers in each of the categories.

3.0 PROCEDURES

Given the scope of the project, our team developed a conceptual schema to provide the structure of the database.

**Diagram

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The schema above provides the data types and primary and foreign key

To determine the flexibility and security of the databse the external schema is as follows.

**Employment:**

1. ENROLLMENT

Graphical user interface, diagram

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Diagram

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**EMPLOYMENT:**

**Diagram

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**RESULTS AND DISCUSSIONS**

Putting the following provisions into code the internal schema is

1. **Internal schema**

/\* create county table \*/

CREATE TABLE county (

  c\_code INT,

  c\_name VARCHAR(20),

  c\_population INT,

  c\_malepop INT,

  c\_femalepop INT,

  PRIMARY KEY (c\_code)

);

/\* create organisation table \*/

CREATE TABLE organisation (

  o\_code INT,

  c\_code INT,

  o\_name VARCHAR(50),

  o\_employees INT,

  o\_malepop INT,

  o\_femalepop INT,

  PRIMARY KEY (o\_code),

  FOREIGN KEY (c\_code) REFERENCES county(c\_code)

);

/\* create employee type table \*/

CREATE TABLE employee\_type (

  type\_code CHAR(3), /\*abbreviation of job title, like engineer = ENG \*/

  e\_type VARCHAR(20),

  PRIMARY KEY (type\_code)

);

/\* create employee table \*/

CREATE TABLE employee (

  e\_id INT,

  o\_code INT,

  e\_fname VARCHAR(20),

  e\_lname VARCHAR(20),

  type\_code VARCHAR(3), /\*abbreviation of job title, like engineer = ENG \*/

  e\_gender CHAR(1), /\* m or f \*/

  e\_salary NUMBER(10,2),

  PRIMARY KEY (e\_id),

  FOREIGN KEY (o\_code) REFERENCES monitoring.organisation(o\_code),

  FOREIGN KEY (type\_code) REFERENCES employee\_type(type\_code)

  CONSTRAINT unique\_values CHECK (e\_gender in ('m','f'))

);

/\* create hire table \*/

CREATE TABLE hire (

  e\_id INT,

  o\_code INT,

  hire\_date DATE,

  years\_of\_employment INT,

  PRIMARY KEY (e\_id, o\_code),

  FOREIGN KEY (e\_id) REFERENCES employee(e\_id),

  FOREIGN KEY (o\_code) REFERENCES organisation(o\_code)

);

/\* create salary table \*/

CREATE TABLE salary (

  type\_code INT,

  o\_code INT,

  avg\_salary NUMBER(10, 2),

  PRIMARY KEY (type\_code, o\_code),

  FOREIGN KEY (o\_code) REFERENCES organisation(o\_code)

);

/\* create school table \*/

CREATE TABLE school (

  s\_id INT,

  c\_code INT,

  s\_name VARCHAR(20),

  s\_population INT,

  s\_malepop INT,

  s\_femalepop INT,

  PRIMARY KEY (s\_id),

  FOREIGN KEY (c\_code) REFERENCES county(c\_code)

);

/\* create student table \*/

CREATE TABLE student (

  st\_id INT,

  s\_id INT,

  s\_fname VARCHAR(20),

  s\_lname VARCHAR(20),

  s\_gender CHAR(1),

  s\_onScholarship CHAR(1),

  PRIMARY KEY (st\_id)

  CONSTRAINT unique\_values CHECK (s\_gender in ('m','f')),

  CONSTRAINT unique\_values CHECK (s\_onScholarship in ('y','n'))

);

/\* create on\_scholarship table \*/

CREATE TABLE on\_scholarship (

  st\_id INT,

  scholarship VARCHAR(20),

  tuition NUMBER(10, 2),

  PRIMARY KEY (st\_id),

  FOREIGN KEY (st\_id) REFERENCES student(st\_id)

);

/\* create no\_scholarship table \*/

CREATE TABLE no\_scholarship (

  st\_id INT,

  tuition NUMBER(10, 2),

  PRIMARY KEY (st\_id),

  FOREIGN KEY (st\_id) REFERENCES student(st\_id)

);

/\* create enroll table \*/

CREATE TABLE enroll (

  st\_id INT,

  s\_id INT,

  enroll\_date DATE,

  enroll\_year VARCHAR(10), /\*freshman, sophomore, junior, senior\*/

  PRIMARY KEY (st\_id, s\_id),

  FOREIGN KEY (st\_id) REFERENCES monitoring.student(st\_id),

  FOREIGN KEY (s\_id) REFERENCES school(s\_id)

);

/\* create degree table \*/

CREATE TABLE degree (

  deg\_code CHAR(3), /\*Abbreviation of degree name, e.g Accounting = ACC\*/

  deg\_name VARCHAR(30),

  PRIMARY KEY (deg\_code)

);

/\* create gpa table \*/

CREATE TABLE gpa (

  grade CHAR(1), /\* A, B, C, D, F \*/

  g\_start INT, /\* e.g A starts at 90 \*/

  g\_end INT, /\*eng A ends at 100\*/

  standing VARCHAR(10), /\*good or bad\*/

  PRIMARY KEY (grade, range\_percent)

  CONSTRAINT unique\_values CHECK (standing in ('good','bad'))

);

/\* create graduate table \*/

CREATE TABLE graduate (

  st\_id INT,

  s\_id INT,

  g\_date DATE,

  grade CHAR(1), /\* A, B, C, D, F \*/

  deg\_code CHAR(3), /\*abbreviation of degree name, e.g Psychology = PSY \*/

  PRIMARY KEY (st\_id, s\_id),

  FOREIGN KEY (st\_id) REFERENCES student(st\_id),

  FOREIGN KEY (s\_id) REFERENCES school(s\_id),

  FOREIGN KEY (deg\_code) REFERENCES degree(deg\_code),

  FOREIGN KEY (grade) REFERENCES gpa(grade)

);

1. Records
   1. **County table**

INSERT INTO county (c\_code, c\_name, c\_population, c\_malepop, c\_femalepop)

VALUES

(001, 'Mombasa', 1208333, 609157, 599176),

(002, 'Kwale', 866820, 429328, 437492),

(003, 'Kilifi', 1453787, 708480, 745307),

(004, 'Tana River', 315943, 159364, 156579),

(005, 'Lamu', 143920, 69767, 74153),

(006, 'Taita Taveta', 340671, 168091, 172580),

(007, 'Garissa', 841353, 440610, 400743),

(008, 'Wajir', 781263, 402527, 378736),

(009, 'Mandera', 867457, 459358, 408099),

(010, 'Marsabit', 459785, 234567, 225218);

1. **Employment tables(organisation, employee\_type, employee, hire, salary)**

/\*insert records into organisation table\*/

INSERT INTO organisation VALUES

(1001, 001, 'ABC Inc.', 50, 25, 25),

(1002, 002, 'XYZ Corp.', 100, 60, 40),

(1003, 003, 'Acme Co.', 200, 100, 100),

(1004, 004, 'Beta Corp.', 75, 30, 45),

(1005, 005, 'Gamma LLC', 150, 75, 75),

(1006, 006, 'Delta Corp.', 80, 40, 40),

(1007, 007, 'Epsilon Inc.', 30, 10, 20),

(1008, 008, 'Theta Corp.', 125, 70, 55),

(1009, 009, 'Iota LLC', 50, 20, 30),

(1010, 010, 'Kappa Co.', 90, 45, 45);

/\*insert records into employee\_type table\*/

INSERT INTO employee\_type VALUES

('ACC', 'Accountant'),

('ADM', 'Administrator'),

('ENG', 'Engineer'),

('EXC', 'Company Executive'),

('HRM', 'Human Resources Manager'),

('INT', 'Intern'),

('MRK', 'Marketing’),

('PRG', 'Programmer'),

('SAL', 'Salesperson'),

('OPR', 'Operations manager');

/\*insert records into employee table\*/

INSERT INTO employee VALUES

(600001, 1001, 'John', 'Doe', 'ENG', 'm', 70000.00),

(600002, 1003, 'Jane', 'Smith', 'HRM', 'f', 85000.00),

(600003, 1002, 'David', 'Brown', 'INT', 'm', 90000.00),

(600004, 1001, 'Linda', 'Johnson', 'ACC', 'f', 55000.00),

(600005, 1002, 'Michael', 'Wilson', 'ENG', 'm', 80000.00),

(600006, 1005, 'Sarah', 'Taylor', 'MRK', 'f', 65000.00),

(600007, 1004, 'Matthew', 'Anderson', 'OPR', 'm', 95000.00),

(600008, 1003, 'Emily', 'Clark', 'SAL', 'f', 75000.00),

(600009, 1005, 'Daniel', 'Martinez', 'PRG', 'm', 85000.00),

(600010, 1004, 'Amanda', 'Lee', 'EXC', 'f', 70000.00);

/\*insert records into hire table\*/

INSERT INTO hire VALUES

(600001, 1001, '2010-05-12', 11),

(600002, 1003, '2018-09-20', 3),

(600003, 1002, '2015-02-28', 6),

(600004, 1001, '2012-07-11', 9),

(600005, 1002, '2019-04-30', 2),

(600006, 1005, '2016-11-18', 5),

(600007, 1004, '2014-03-15', 8),

(600008, 1003, '2017-06-22', 4),

(600009, 1005, '2013-08-08', 8),

(600010, 1004, '2021-01-10', 1);

/\*version 2, incase it doesn’t work\*/

INSERT INTO hire VALUES

(600001, 1001, TO\_DATE('12/05/2010', 'DD/MM/YYYY'), 11),

(600002, 1003, TO\_DATE('20/09/2018', 'DD/MM/YYYY'), 3),

(600003, 1002, TO\_DATE('28/02/2015', 'DD/MM/YYYY'), 6),

(600004, 1001, TO\_DATE('11/07/2012', 'DD/MM/YYYY'), 9),

(600005, 1002, TO\_DATE('30/04/2019', 'DD/MM/YYYY'), 2),

(600006, 1005, TO\_DATE('18/11/2016', 'DD/MM/YYYY'), 5),

(600007, 1004, TO\_DATE('15/03/2014', 'DD/MM/YYYY'), 8),

(600008, 1003, TO\_DATE('22/06/2017', 'DD/MM/YYYY'), 4),

(600009, 1005, TO\_DATE('08/08/2013', 'DD/MM/YYYY'), 8),

(600010, 1004, TO\_DATE('10/01/2021', 'DD/MM/YYYY'), 1);

/\*insert records into salary\*/

INSERT INTO salary VALUES

('ACC', 1001, 85000.00),

('ADM', 1001, 125000.00),

('ENG', 1002, 65000.00),

('EXC', 1002, 55000.00),

('HRM', 1003, 45000.00),

('INT', 1003, 60000.00),

('MRK', 1004, 80000.00),

('PRG', 1004, 130000.00),

('SAL', 1005, 70000.00),

('OPR', 1005, 40000.00);

1. **Education tables(school, student, on\_scholarship, no\_scholarship, enroll, degree, gpa, graduate)**

/\*insert into school\*/

INSERT INTO school (s\_id, c\_code, s\_name, s\_population, s\_malepop, s\_femalepop)

VALUES

(1, 001, 'Springfield High School', 1000, 500, 500),

(2, 002, 'Oakland Elementary', 750, 350, 400),

(3, 002, 'Maplewood Middle School', 900, 450, 450),

(4, 003, 'Northridge High School', 1100, 600, 500),

(5, 004, 'Lincoln Elementary', 600, 300, 300),

(6, 005, 'Roosevelt Middle School', 800, 400, 400),

(7, 006, 'Jefferson Elementary', 650, 300, 350),

(8, 008, 'Westfield High School', 950, 500, 450),

(9, 009, 'Hillside Elementary', 500, 250, 250),

(10, 010, 'Fairview Middle School', 700, 350, 350);

/\*insert into student\*/

INSERT INTO student (st\_id, s\_id, s\_fname, s\_lname, s\_gender, s\_onScholarship)

VALUES

  (1, 1, 'John', 'Doe', 'm', 'y'),

  (2, 2, 'Jane', 'Smith', 'f', 'n'),

  (3, 3, 'Bob', 'Johnson', 'm', 'n'),

  (4, 4, 'Alice', 'Williams', 'f', 'y'),

  (5, 5, 'Mark', 'Davis', 'm', 'n'),

  (6, 6, 'Sara', 'Lee', 'f', 'y'),

  (7, 7, 'David', 'Brown', 'm', 'n'),

  (8, 8, 'Emily', 'Taylor', 'f', 'n'),

  (9, 9, 'Michael', 'Wilson', 'm', 'y'),

  (10, 10, 'Jennifer', 'Thomas', 'f', 'y');

/\*insert into enroll\*/

INSERT INTO enroll (st\_id, s\_id, enroll\_date, enroll\_year)

VALUES

(1, 1, '2021-09-01', 'freshman'),

(2, 2, '2021-09-01', 'junior'),

(3, 3, '2021-09-01', 'sophomore'),

(4, 4, '2021-09-01', 'senior'),

(5, 5, '2021-09-01', 'freshman'),

(6, 6, '2021-09-01', 'sophomore'),

(7, 7, '2021-09-01', 'freshman'),

(8, 8, '2021-09-01', 'senior'),

(9, 9, '2021-09-01', 'junior'),

(10, 10, '2021-09-01', 'freshman');

/\*insert into on\_scholarship\*/

INSERT INTO on\_scholarship (st\_id, scholarship, tuition)

VALUES

  (1, 'Merit Scholarship', 5000.00),

  (2, 'Athletic Scholarship', 7500.00),

  (4, 'Need-based Scholarship', 10000.00),

  (5, 'Merit Scholarship', 5000.00),

  (6, 'Athletic Scholarship', 7500.00),

  (7, 'Need-based Scholarship', 10000.00),

  (8, 'Merit Scholarship', 5000.00),

  (9, 'Athletic Scholarship', 7500.00),

  (10, 'Need-based Scholarship', 10000.00),

  (3, 'Merit Scholarship', 5000.00);

/\*insert into no\_scholarship\*/

INSERT INTO no\_scholarship (st\_id, tuition)

VALUES

  (1, 10000.00),

  (2, 12000.00),

  (3, 9000.00),

  (4, 11000.00),

  (5, 8000.00),

  (6, 13000.00),

  (7, 9500.00),

  (8, 11500.00),

  (9, 7500.00),

  (10, 14000.00);

/\*Option 1\*/

INSERT INTO enroll (st\_id, s\_id, enroll\_date, enroll\_year)

 VALUES

 (1, 1, '2022-08-01', 'freshman'),

(2, 2, '2022-08-02', 'freshman'),

 (3, 3, '2022-08-03', 'sophomore'),

 (4, 4, '2022-08-04', 'sophomore'),

(5, 5, '2022-08-05', 'junior'),

 (6, 6, '2022-08-06', 'junior'),

(7, 7, '2022-08-07', 'senior'),

 (8, 8, '2022-08-08', 'senior'),

(9, 9, '2022-08-09', 'freshman'),

(10, 10, '2022-08-10', 'freshman');

/\*Option 2\*/

INSERT INTO enroll (st\_id, s\_id, enroll\_date, enroll\_year)

VALUES

  (1, 1, TO\_DATE('01/08/2022', 'DD/MM/YYYY'), 'freshman'),

  (2, 2, TO\_DATE('02/08/2022', 'DD/MM/YYYY'), 'freshman'),

  (3, 3, TO\_DATE('03/08/2022', 'DD/MM/YYYY'), 'sophomore'),

  (4, 4, TO\_DATE('04/08/2022', 'DD/MM/YYYY'), 'sophomore'),

  (5, 5, TO\_DATE('05/08/2022', 'DD/MM/YYYY'), 'junior'),

  (6, 6, TO\_DATE('06/08/2022', 'DD/MM/YYYY'), 'junior'),

  (7, 7, TO\_DATE('07/08/2022', 'DD/MM/YYYY'), 'senior'),

  (8, 8, TO\_DATE('08/08/2022', 'DD/MM/YYYY'), 'senior'),

  (9, 9, TO\_DATE('09/08/2022', 'DD/MM/YYYY'), 'freshman'),

  (10, 10, TO\_DATE('10/08/2022', 'DD/MM/YYYY'), 'freshman');

/\*insert into degree table\*/

INSERT INTO degree (deg\_code, deg\_name)

VALUES

  (CSI, 'Computer Science'),

  (ENG, 'English'),

  (BIO, 'Biology'),

  (GDE, 'Graphic Design'),

  (PSY, 'Psychology'),

  (HIS, 'History'),

  (MTH, 'Mathematics'),

  (CHM, 'Chemistry'),

  (PSC, 'Political Science'),

  (ENV, 'Environmental Science');

/\*insert into gpa table\*/

INSERT INTO gpa (grade, g\_start, g\_end, standing)

VALUES

  ('A', 90, 100, 'good'),

  ('B', 80, 89, 'good'),

  ('C', 70, 79, 'good'),

  ('D', 60, 69, 'bad'),

  ('F', 50, 59, 'bad')

 ('G', 40, 49, 'bad'),

  ('H', 30, 39, 'bad'),

  ('I', 20, 29, 'bad'),

  ('J', 10, 19, 'bad'),

  ('K', 0, 9, 'bad');

/\*insert into graduate\*/

/\*option 1\*/

INSERT INTO graduate (st\_id, s\_id, g\_date, grade, deg\_code)

VALUES

  (1, 1, '2022-05-20', 'A', 'CHM'),

  (2, 2, '2021-12-15', 'B', 'ENG'),

  (3, 3, '2022-05-20', 'A', 'BIO'),

  (4, 4, '2021-12-15', 'C', 'HIS'),

  (5, 5, '2022-05-20', 'B', 'ENV'),

  (6, 6, '2021-12-15', 'A', 'CSI'),

  (7, 7, '2022-05-20', 'C', 'PSC'),

  (8, 8, '2021-12-15', 'D', 'PSC'),

  (9, 9, '2022-05-20', 'B', 'ENG'),

  (10, 10, '2021-12-15', 'F', 'BIO');

/\*option 2\*/

INSERT INTO graduate (st\_id, s\_id, g\_date, grade, deg\_code) VALUES (1, 1, TO\_DATE('20/05/2022', 'DD/MM/YYYY'), 'A', 'CHM'),

 (2, 2, TO\_DATE('15/12/2021', 'DD/MM/YYYY'), 'B', 'ENG'),

 (3, 3, TO\_DATE('20/05/2022', 'DD/MM/YYYY'), 'A', 'BIO'),

(4, 4, TO\_DATE('15/12/2021', 'DD/MM/YYYY'), 'C', 'HIS'),

 (5, 5, TO\_DATE('20/05/2022', 'DD/MM/YYYY'), 'B', 'ENV'),

 (6, 6, TO\_DATE('15/12/2021', 'DD/MM/YYYY'), 'A', 'CSI'),

 (7, 7, TO\_DATE('20/05/2022', 'DD/MM/YYYY'), 'C', 'PSC'),

(8, 8, TO\_DATE('15/12/2021', 'DD/MM/YYYY'), 'D', 'PSC'),

(9, 9, TO\_DATE('20/05/2022', 'DD/MM/YYYY'), 'B', 'ENG'),

(10, 10, TO\_DATE('15/12/2021', 'DD/MM/YYYY'), 'F', 'BIO');

# Volunteered at an elderly person’s home dedicating over 8+ hours to improve the living conditions of the residents

Collaborated with a team of 10 members to prepare and serve nourishing meals to the elderly community

Engaged in landscaping activities to rejuvenate the environment resulting in up to a 100% satisfactory rate

Generously donated over 50+ essential items to boost the comforts and well-being of residents