**ISAD251 Report**

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# Introduction

## Scenario

There is a need for a university system that allows stage-two computing students to apply for a placement year. This application will be tracking the student’s activity throughout the application process, from the start of stage-two until they have secured a placement. It will not focus solely on students, but also be capable of managing companies and the jobs available to students. Students will be capable of applying through a mobile app, whilst the university will be able to manage students and companies through the admin desktop app.

## Background information

Relating specifically to the requirements of the system, a student will be required to input their information in order to use the system. This includes: student ID, programme undertaking, full name, email address, mobile and landline telephone number, date of birth and home address. Furthermore, specific values must not be null and in the format that best suites the content. In order for a student to apply for a job, they are required to submit a CV and had it approved. Once this has been accomplished, they will be deemed ‘active’ and can start applying for jobs.

A company is capable of having one or more sites; the jobs provided by a company will be related to a specific site the company owns, and thus will be the location for the job. This includes the address and postcode. In order for the student to apply for a job, they must be informed about the specifics of the job, and therefore the job must include: a job title, a short description outlining the job, contact information for enquiries, the salary of the job, the start date for the placement, a closing date for applications and an application method. Specific jobs will also require information relating to the student’s application history, which will outline the dates and times of the student’s status throughout their previous applications.

## Assumptions made

* Each site will have its own independent email address and telephone number for students to contact enquiring about the job available.
* Each site can have multiple jobs.
* Each job can have multiple vacancies available.
* Each company should have at least one site
* There is no limit for how many sites a company can have.
* Admin will be responsible for creating the students’ accounts.

## 4. Title

# Appendix

## Entity Relationship Diagram

## SQL Scripts

CREATE TABLE "APEX811"."COMPANIES"

( "COMPANYNAME" VARCHAR2(80 BYTE) CONSTRAINT "COMPANYNAME\_NN" NOT NULL ENABLE,

CONSTRAINT "COMPANYNAME\_PK" PRIMARY KEY ("COMPANYNAME")

);

CREATE TABLE "APEX811"."SITES"

( "SITEID" VARCHAR2(7 BYTE) DEFAULT ON NULL 'S'||LTRIM(TO\_CHAR("APEX811"."SEQ\_SITE\_ID"."NEXTVAL",'09999')) NOT NULL ENABLE,

"SITENAME" VARCHAR2(40 BYTE) CONSTRAINT "SITENAME\_NN" NOT NULL ENABLE,

"ADDRESS" VARCHAR2(200 BYTE) CONSTRAINT "ADDRESS\_NN" NOT NULL ENABLE,

"COMPANYNAME" VARCHAR2(80 BYTE) CONSTRAINT "SITE\_COMPANYNAME\_NN" NOT NULL ENABLE,

"POSTCODE" VARCHAR2(8 BYTE) CONSTRAINT "SITE\_POSTCODE\_NN" NOT NULL ENABLE,

CONSTRAINT "SITEID\_PK" PRIMARY KEY ("SITEID"),

CONSTRAINT "SITE\_POSTCODE\_CHK" CHECK (postcode LIKE '%\_\_\_ \_\_\_') ENABLE,

CONSTRAINT "COMPANYNAME\_FK" FOREIGN KEY ("COMPANYNAME")

REFERENCES "APEX811"."COMPANIES" ("COMPANYNAME") ENABLE

) ;

CREATE SEQUENCE "APEX811"."SEQ\_SITE\_ID" MINVALUE 1 MAXVALUE 99999 INCREMENT BY 1 START WITH 10016 NOCACHE NOORDER CYCLE NOKEEP NOSCALE GLOBAL ;

CREATE TABLE "APEX811"."JOBS"

( "JOBID" VARCHAR2(7 BYTE) DEFAULT ON NULL 'J'||LTRIM(TO\_CHAR("APEX811"."SEQ\_JOB\_ID"."NEXTVAL",'09999')) NOT NULL ENABLE,

"JOBTITLE" VARCHAR2(40 BYTE) CONSTRAINT "JOBS\_JOB\_TITLE\_NN" NOT NULL ENABLE,

"JOBDESCRIPTION" VARCHAR2(2000 BYTE) CONSTRAINT "JOBS\_JOB\_DESCRIPTION\_NN" NOT NULL ENABLE,

"CONTACTEMAIL" VARCHAR2(100 BYTE) CONSTRAINT "JOB\_EMAIL\_NN" NOT NULL ENABLE,

"CONTACTTELEPHONE" VARCHAR2(11 BYTE) CONSTRAINT "JOB\_TELEPHONE\_NN" NOT NULL ENABLE,

"SALARY" NUMBER(7,2),

"STARTDATE" DATE,

"VACANCIESAVAILABLE" NUMBER(2,0),

"APPLICATIONCLOSINGDATE" DATE CONSTRAINT "JOBS\_APPLICATION\_CLOSING\_DATE\_NN" NOT NULL ENABLE,

"APPLICATIONMETHOD" VARCHAR2(30 BYTE) CONSTRAINT "JOBS\_APPLICATION\_METHOD\_NN" NOT NULL ENABLE,

"SITEID" VARCHAR2(7 BYTE) CONSTRAINT "SITEID\_NN" NOT NULL ENABLE,

CONSTRAINT "JOBS\_JOB\_ID\_PK" PRIMARY KEY ("JOBID"),

CONSTRAINT "JOB\_EMAIL\_CHK" CHECK (contactemail LIKE '%\_@\_\_\_%.\_\_%') ENABLE,

CONSTRAINT "JOB\_MOBILE\_CHK" CHECK (contacttelephone NOT LIKE '%[^0-9]%') ENABLE,

CONSTRAINT "JOBS\_SITE\_ID\_FK" FOREIGN KEY ("SITEID")

REFERENCES "APEX811"."SITES" ("SITEID") ENABLE

) ;

CREATE SEQUENCE "APEX811"."SEQ\_JOB\_ID" MINVALUE 1 MAXVALUE 99999 INCREMENT BY 1 START WITH 10024 NOCACHE NOORDER CYCLE NOKEEP NOSCALE GLOBAL ;

CREATE TABLE "APEX811"."PROGRAMMES"

( "PROGRAMME\_CODE" CHAR(4 BYTE),

"PROGRAMME\_NAME" VARCHAR2(60 BYTE) CONSTRAINT "PROGRAME\_NAME\_NN" NOT NULL ENABLE,

"PLACEMENT\_MANDATORY" CHAR(1 BYTE),

CONSTRAINT "PROGRAMME\_CODE\_PK" PRIMARY KEY ("PROGRAMME\_CODE")

) ;

CREATE TABLE "APEX811"."STUDENTS"

( "STUDENTID" NUMBER DEFAULT ON NULL "APEX811"."SEQ\_STUDENT\_ID"."NEXTVAL" NOT NULL ENABLE,

"USERNAME" VARCHAR2(20 BYTE) CONSTRAINT "USERNAME\_NN" NOT NULL ENABLE,

"PASSWORD" VARCHAR2(20 BYTE) CONSTRAINT "PASSWORD\_NN" NOT NULL ENABLE,

"FIRSTNAME" VARCHAR2(30 BYTE) CONSTRAINT "FIRSTNAME\_NN" NOT NULL ENABLE,

"LASTNAME" VARCHAR2(45 BYTE) CONSTRAINT "LASTNAME\_NN" NOT NULL ENABLE,

"EMAIL" VARCHAR2(100 BYTE) CONSTRAINT "STUDENT\_EMAIL\_NN" NOT NULL ENABLE,

"MOBILE" VARCHAR2(11 BYTE),

"LANDLINE" VARCHAR2(11 BYTE),

"PROGRAMME\_CODE" CHAR(4 BYTE) CONSTRAINT "PROGRAMME\_CODE\_NN" NOT NULL ENABLE,

"DOB" DATE CONSTRAINT "DOB\_NN" NOT NULL ENABLE,

"PREFERENCE" VARCHAR2(2000 BYTE),

"TERMADDRESS" VARCHAR2(200 BYTE) CONSTRAINT "STUDENT\_TERMADDRESS\_NN" NOT NULL ENABLE,

"TERMPOSTCODE" VARCHAR2(8 BYTE) CONSTRAINT "STUDENT\_TERMPOSTCODE\_NN" NOT NULL ENABLE,

"HOMEADDRESS" VARCHAR2(200 BYTE) CONSTRAINT "STUDENT\_HOMEADDRESS\_NN" NOT NULL ENABLE,

"HOMEPOSTCODE" VARCHAR2(8 BYTE) CONSTRAINT "STUDENT\_HOMEPOSTCODE\_NN" NOT NULL ENABLE,

"CVSUBMITTED" DATE,

"CVACCEPTED" DATE,

CONSTRAINT "STUDENTID\_PK" PRIMARY KEY ("STUDENTID"),

CONSTRAINT "STUDENT\_EMAIL\_CHK" CHECK (email LIKE '%\_@\_\_\_%.\_\_%') ENABLE,

CONSTRAINT "STUDENT\_MOBILE\_CHK" CHECK (mobile NOT LIKE '%[^0-9]%') ENABLE,

CONSTRAINT "STUDENT\_LANDLINE\_CHK" CHECK (landline NOT LIKE '%[^0-9]%') ENABLE,

CONSTRAINT "STUDENT\_TERMPOSTCODE\_CHK" CHECK (termpostcode LIKE '%\_\_\_ \_\_\_') ENABLE,

CONSTRAINT "STUDENT\_HOMEPOSTCODE\_CHK" CHECK (homepostcode LIKE '%\_\_\_ \_\_\_') ENABLE,

CONSTRAINT "FK\_PROGRAMME\_CODE" FOREIGN KEY ("PROGRAMME\_CODE")

REFERENCES "APEX811"."PROGRAMMES" ("PROGRAMME\_CODE") ENABLE

) ;

CREATE SEQUENCE "APEX811"."SEQ\_STUDENT\_ID" MINVALUE 1 MAXVALUE 999999 INCREMENT BY 1 START WITH 100042 NOCACHE NOORDER CYCLE NOKEEP NOSCALE GLOBAL ;

CREATE OR REPLACE EDITIONABLE TRIGGER "APEX811"."TRG\_CV\_ACCEPTED"

BEFORE UPDATE OF CVACCEPTED ON STUDENTS FOR EACH ROW

BEGIN

IF :OLD.CVSUBMITTED IS NULL

THEN :NEW.CVACCEPTED := NULL;

END IF;

END;

/

ALTER TRIGGER "APEX811"."TRG\_CV\_ACCEPTED" ENABLE;

CREATE OR REPLACE EDITIONABLE TRIGGER "APEX811"."TRG\_DOB"

BEFORE INSERT OR UPDATE OF DOB ON STUDENTS FOR EACH ROW

BEGIN

IF (:NEW.dob + NUMTOYMINTERVAL(18,'YEAR')) >

SYSDATE THEN

RAISE\_APPLICATION\_ERROR(-18, 'Student must be at least 18 years old');

END IF;

END;

/

ALTER TRIGGER "APEX811"."TRG\_DOB" ENABLE;

CREATE TABLE "APEX811"."APPLICATIONS"

( "APPLICATIONID" VARCHAR2(9 BYTE) DEFAULT ON NULL 'A'||LTRIM(TO\_CHAR("APEX811"."SEQ\_APPLICATION\_ID"."NEXTVAL",'0999999')) NOT NULL ENABLE,

"STUDENTID" NUMBER CONSTRAINT "STUDENT\_ID\_NN" NOT NULL ENABLE,

"JOBID" VARCHAR2(7 BYTE) CONSTRAINT "JOB\_ID\_NN" NOT NULL ENABLE,

"APPLICATIONSTATUS" VARCHAR2(28 BYTE) CONSTRAINT "APPLICATIONSTATUS\_NN" NOT NULL ENABLE,

"STATUSDATE" DATE,

CONSTRAINT "APPLICATION\_ID\_PK" PRIMARY KEY ("APPLICATIONID"),

CONSTRAINT "APPLICATIONS\_STUDENT\_ID\_FK" FOREIGN KEY ("STUDENTID")

REFERENCES "APEX811"."STUDENTS" ("STUDENTID") ENABLE,

CONSTRAINT "FK\_JOBID" FOREIGN KEY ("JOBID")

REFERENCES "APEX811"."JOBS" ("JOBID") ENABLE

) ;

CREATE SEQUENCE "APEX811"."SEQ\_APPLICATION\_ID" MINVALUE 1 MAXVALUE 9999999 INCREMENT BY 1 START WITH 1000029 NOCACHE NOORDER CYCLE NOKEEP NOSCALE GLOBAL ;

CREATE OR REPLACE EDITIONABLE TRIGGER "APEX811"."TRG\_APPLICATION\_UPDATE"

BEFORE UPDATE OF APPLICATIONSTATUS, STATUSDATE ON APPLICATIONS FOR EACH ROW

BEGIN

INSERT INTO APPLICATIONHISTORIES

(

APPLICATIONID, APPLICATIONSTATUS, STATUSDATE

)

VALUES

(

:OLD.APPLICATIONID, :OLD.APPLICATIONSTATUS, :OLD.STATUSDATE

);

END;

ALTER TRIGGER "APEX811"."TRG\_APPLICATION\_UPDATE" ENABLE;

CREATE TABLE "APEX811"."APPLICATIONHISTORIES"

( "APPLICATIONID" VARCHAR2(9 BYTE),

"APPLICATIONSTATUS" VARCHAR2(28 BYTE) CONSTRAINT "APPLICATIONHISTORIESSTATUS\_NN" NOT NULL ENABLE,

"STATUSDATE" DATE,

CONSTRAINT "APPLICATIONHISTORIES\_PK" PRIMARY KEY ("APPLICATIONID", "APPLICATIONSTATUS"),

CONSTRAINT "APPLICATION\_HISTORIES\_ID\_FK" FOREIGN KEY ("APPLICATIONID")

REFERENCES "APEX811"."APPLICATIONS" ("APPLICATIONID") ENABLE

) ;