MIS 64082 Practicum 2, Part 1
SQL DDL & DML

INSTRUCTIONS

What It's Worth and When It's Due

This take-home portion of Practicum #2 is worth 150 points, or 15% of your overall course grade. It is due by **class time (12:30 PM) on Thursday, October 28th**. *(NOTE: This is 2 days after what is shown in the syllabus.)* Late submissions will be accepted for up to 48 hours past the due date (i.e., until Saturday, Oct. 30th at 12:30 PM), with a 10% penalty per day. There is no credit for submissions received more than 48 hours late.

If everyone in the class submits their work on time, we will have an opportunity to discuss at least some of the answers in class on Oct. 28th prior to your taking the in-class SQL exam on the following Tuesday (Nov. 2nd).

What You Have to Do

Full instructions on how to document and submit your work for grading are found on the following pages. The files you need, as well as the submission instructions, are structured in a similar fashion as to how this practicum is administered in the online version of the course. These detailed instructions will likely seem confusing to you at first, so take your time and read them very carefully (and ask me for clarification if you are still confused about anything)! *You MUST follow these instructions properly in order to receive credit!*

How Long It Should Take to Complete

Depending on your level of comfort in working with SQL statements and Oracle SQL Developer, this assignment could take you anywhere from a few hours to a few days to complete. Do not procrastinate beginning to work on it, or you could miss the deadline! Last semester, quite a few students in the online version of the course waited until right before the Part 2 proctored SQL exam (which focuses on SQL DML) to start working on the Part 1 take-home assignment (which focuses on SQL DDL). This approach is *not* recommended if you want to do well on both parts of the practicum! In other words, the sooner you get this done, the more time you will have to focus on practicing writing SQL queries for the in-class exam.

What is Allowed

You may reference any class or online resources (e.g., SQL tutorials, other textbooks) that you wish to complete the assignment. However, be careful that any external resources you use do not contradict the way that these concepts have been taught in our own class textbooks and course materials. You are also encouraged to ask me for clarification if you do not understand any of the instructions. If you do find any part of the assignment to be unclear or ambiguous, please ask me for clarification well in advance of the due date.

What is Not Allowed

You are expected to complete this assignment ***alone***, without the assistance of any current or previous classmates, online or personal tutors, strangers on websites such as Course Hero or Chegg, roommates, friends, or any other individuals. In other words, *the only person you should be consulting if you have questions or need clarification of any concepts should be me*. Violations of this policy will result in, at minimum, a grade of 0 on the assignment with no opportunity for resubmission. Harsher sanctions may also be applied according to the syllabus policy.

Everyone has been assigned a specific, unique file that they must use to complete the assignment. You may only use the instructions and data file that were given to you. If you submit an assignment that is based on someone else's instructions and data file, you will receive *at minimum* a 0 on the assignment. If you lose or otherwise corrupt your personalized copy of the assignment files, you need to let me know ASAP. *You may not, under any circumstances at all, use a classmate's assigned files in place of your own*.

CHECKLIST FOR SUBMISSION:

- **Check the Practicum 2 Part 1 folder I have created in Blackboard for your personalized instructions and data files**. You *must* use the instructions and data file that has been assigned to you, and not anyone else's.

- **Write CREATE TABLE statements** to create the four tables that have been assigned to you. Save your SQL as a single .sql file for submission. Create the tables exactly as the information from the ER diagram (generated using the Data Modeler tool in Oracle SQL Developer) states. *Make no changes at all to this design*. Your score for this section is based on how accurately you create the database from the exact information provided to you. Be sure you do the following in your CREATE TABLE and/or ALTER TABLE statements:
  - Use the column names and datatypes as shown in the diagram. (30 points total)
  - Specify the 'null/not null' constraints as shown on the diagram. (10 points total)
  - Implement the constraints for the primary keys, foreign keys, and unique / alternate keys (if any) as shown in the diagram. Use the constraint names shown in the diagram. (40 points total)
  - Implement the CHECK constraints described in the details found later in this document. (60 points total)
  - Implement the DEFAULT values described in the details found later in this document. (10 points total)

- Be sure to **order your CREATE TABLE statements (and ALTER TABLE statements, if used) properly** in the DDL script you turn in to me. In other words, you must create any "parent" tables (i.e., tables on the "one" side of a one-to-many relationship, or tables representing a supertype in a one-to-one supertype-subtype relationship) first, and only then should you list the code to create the "child" tables (i.e., tables on the "many" side of a one-to-many relationship, or tables representing subtypes in a one-to-one supertype-subtype relationship). Otherwise, you will find that your foreign keys in the "child" table have no corresponding primary key in the "parent" table to reference. See the example script from last semester's class practicum for examples if needed.

- **Debug your script** as needed by dropping all 4 tables in the database and then recreating them with any changes you may have made in the CREATE statements, as you've often seen me do when running examples in class. Again, you can find examples of how to put DROP TABLE statements at the beginning of your script, to aid with debugging, in the example practicum files posted in Blackboard from last semester.

- **Retrieve your assigned / personalized REFRESHDATA script from Blackboard. Run this script.** Scroll back through the confirmations for inserting each row to check for errors. If you find any errors, there is a problem with your implementation that needs to be debugged. Do not assume any errors are the fault of the INSERT statements! I have checked these repeatedly. Rather, assume that these errors are due to your implementation. IMPORTANT: Do not panic if you run the data and get numerous errors! *The only error you should consider valid is the FIRST error in that particular run of the script* (TIP: clear your query result pane between each script run so you do not become confused from looking at old error messages). Only consider the *first* error because many or all of the others may be attributed to the record failing to be inserted on the first error and other errors may be created simply because that record does not exist. Debug the first error, then run the script again and find the first error again. If it is the *same* error as before, then your script change did not fix it, so try something else. If it is a *new* error, then this is now a valid error. Debug and repeat until no errors remain. Errors will usually be caused by misspellings of tables or columns, syntax errors such as extra or missing punctuation symbols, or could be caused by an improperly configured CHECK constraint. Start debugging an error by validating these. Search the ORA-##### error message you receive for more information on the specific error – you can do an internet search for Oracle documentation of the error message if necessary.

- Once the REFRESHDATA script inserts all the data without any errors, **you are fundamentally finished except for testing and submission**. Please keep in mind that if the script runs properly, this simply means that "*good*" data is being allowed to be inserted into your database the way it is supposed to. It does not necessarily mean that all "*bad*" data will be properly rejected! I highly suggest taking the additional step of testing your implementation's CHECK and FOREIGN KEY constraints by *trying to submit data that should be rejected* as well as *additional data that should not* (if rejected, it will give you an error that it violates the check or foreign key constraint you are testing). Make sure INSERT statements that *should* be rejected *are* rejected, AND that INSERT statements that *should not* be rejected *are not* rejected (in other words, test both).

- **Read this important information on scoring:** Your database *must* be implemented in *your* Oracle account! The DDL document you upload to Dropbox is *confirmation* of your work, but I grade what is *actually in your database*, not that document directly. If you have some required code in the script that you uploaded to Blackboard, but this code is not actually implemented in your Oracle database, you may get some partial credit for the code but it is limited to 50% credit if not successfully implemented in Oracle. *Again, make sure the database in your class Oracle database account is complete in every way*.

- **Confirm that your account has the fully-implemented database**. You can drop and recreate the tables fresh, as many times as you wish, so that they reflect *only* what is in your final CREATE TABLE script statements. Also make sure that the final data is inserted into your tables and has not been modified in any way. You can run the REFRESHDATA script before submitting to ensure this. *Note that if you run the CREATE TABLE script again you must also run the REFRESHDATA script, or your tables will be empty*.

- **Submit your CREATE TABLE script** that recreates your entire database as a text document with a .sql extension, in Blackboard. The file name should be your Kent userid (in your email address, it is the part before @kent.edu) followed by _DDL. For example, a submission from me would have the filename of 'gpolites_DDL.sql' . *After you submit this file you are to make no more changes to your database until it has been graded and any grading questions have been resolved*. You need not do anything to submit what you did in the database itself, it is considered submitted when you submit the script. I will log into each Oracle account directly.

Check Constraint Detail (create each listed constraint with the exact name provided):

Table: CONF_TRACKS

- CONF_TRACK_ACCEPTED_CHK1: Limit NUMBER_ACCEPTED_PAPERS to 70% (.70) of the value for NUMBER_SUBMISSIONS. In other words, a track cannot accept more than 70% of that track's submitted papers.
- CONF_TRACK_ACCEPTED_CHK2: Limit NUMBER_ACCEPTED_PAPERS to 20 or less.

Table: MEMB_ACADEMIC

- MEMB_ACAD_DIRECTORY_CHK: Limit DIRECTORY_FLAG to only these values (make sure you match the case (upper/lower) of the acceptable values as well): YES, NO

Table: INDIV_MEMBER

- INDIV_MEMBER_TYPE_CHK: Limit MEMBER_TYPE to only these values: A, S, M, O (first letter of each subtype).
- INDIV_MEMBER_GENDER_CHK: Limit GENDER to only these values (make sure you match the case (upper/lower) of the acceptable values as well): Man, Woman, Non-binary, Prefer to self-describe, Prefer not to indicate

Table: CONFERENCE

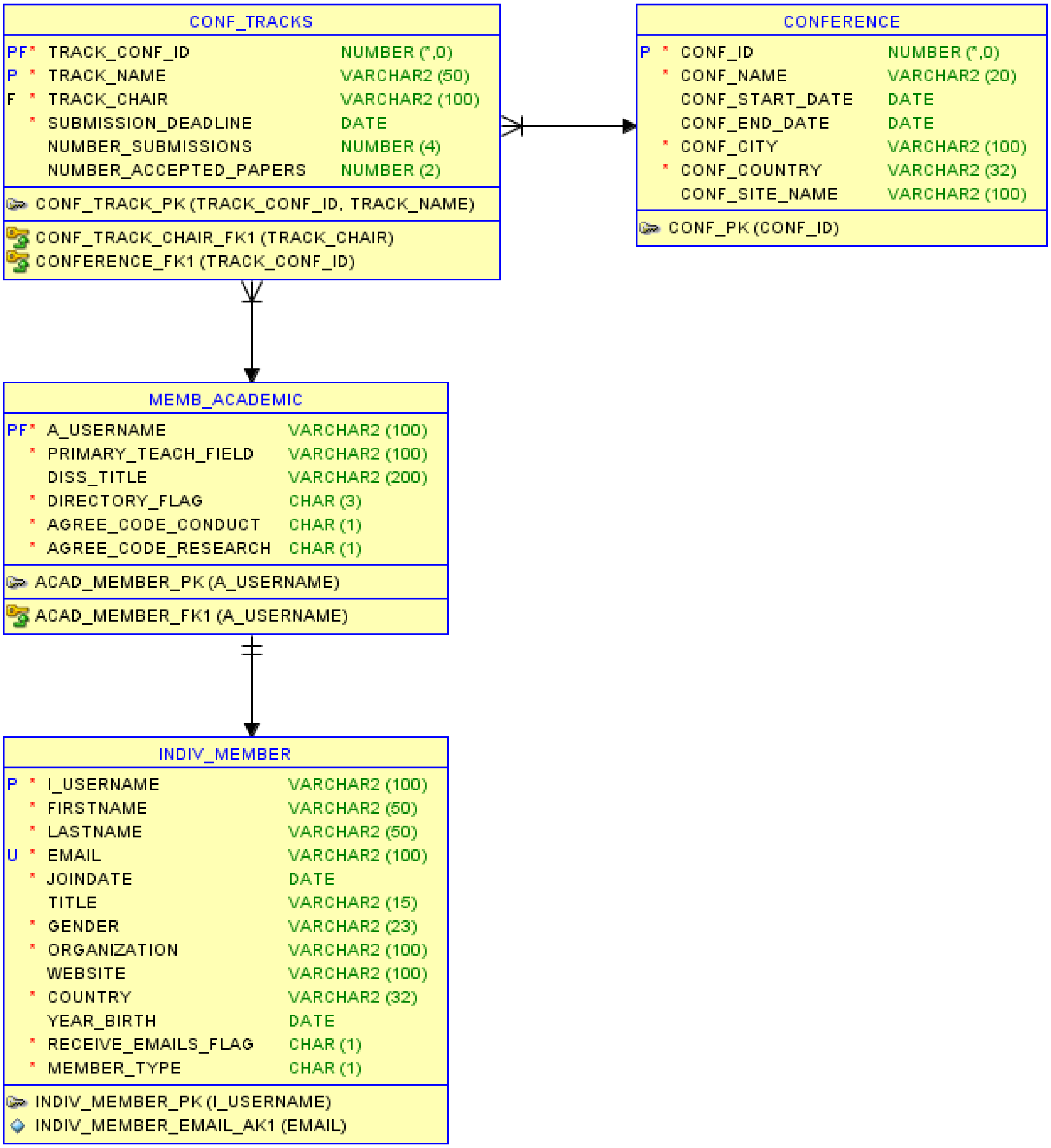
- CONF_END_DATE_CHK: Limit CONF_END_DATE to values that fall on the same day as CONF_START_DATE or later.

Default values:

TABLE & COLUMN	DEFAULT VALUES
CONFERENCE.CONF_COUNTRY	USA
INDIV_MEMBER.COUNTRY	USA
INDIV_MEMBER.JOINDATE	SYSDATE
INDIV_MEMBER.TITLE	DR.
MEMB_ACADEMIC.AGREE_CODE_RESEARCH	Y
MEMB_ACADEMIC.AGREE_CODE_CONDUCT	Y

<u>Write CREATE TABLE statements for the four tables you have been assigned ONLY</u>. I have shown the full database diagram on the final page of this document, simply to improve your understanding of the business situation, which is modified and expanded from your take-home assignment in Practicum 1. Your personalized (four table) diagram is shown below.

STORY: An individual AIS member (supertype) may potentially be an academic member (subtype). An academic member can potentially serve as a track chair many times for different conferences. However, a track chair assignment must be traceable back to exactly one academic member. A typical conference has many different tracks, but each individual track can be traced back to a specific conference.



CONF_TRACKS

PF	*	TRACK_CONF_ID	NUMBER (*,0)
P	*	TRACK_NAME	VARCHAR2 (50)
F	*	TRACK_CHAIR	VARCHAR2 (100)
	*	SUBMISSION_DEADLINE	DATE
		NUMBER_SUBMISSIONS	NUMBER (4)
		NUMBER_ACCEPTED_PAPERS	NUMBER (2)

CONF_TRACK_PK (TRACK_CONF_ID, TRACK_NAME)

CONF_TRACK_CHAIR_FK1 (TRACK_CHAIR)
CONFERENCE_FK1 (TRACK_CONF_ID)

CONFERENCE

P	*	CONF_ID	NUMBER (*,0)
	*	CONF_NAME	VARCHAR2 (20)
		CONF_START_DATE	DATE
		CONF_END_DATE	DATE
	*	CONF_CITY	VARCHAR2 (100)
	*	CONF_COUNTRY	VARCHAR2 (32)
		CONF_SITE_NAME	VARCHAR2 (100)

CONF_PK (CONF_ID)

MEMB_ACADEMIC

PF	*	A_USERNAME	VARCHAR2 (100)
	*	PRIMARY_TEACH_FIELD	VARCHAR2 (100)
		DISS_TITLE	VARCHAR2 (200)
	*	DIRECTORY_FLAG	CHAR (3)
	*	AGREE_CODE_CONDUCT	CHAR (1)
	*	AGREE_CODE_RESEARCH	CHAR (1)

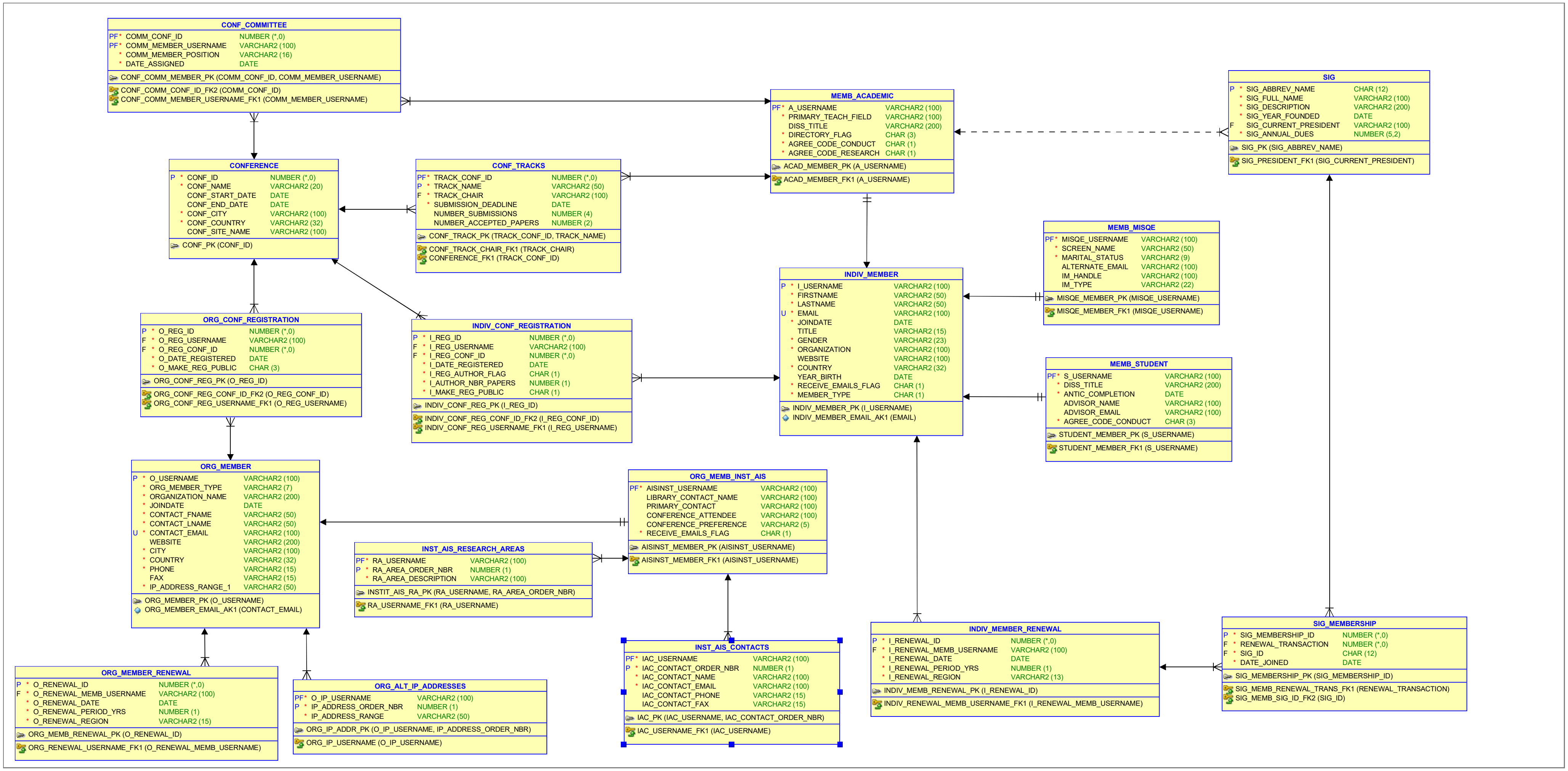
ACAD_MEMBER_PK (A_USERNAME)

ACAD_MEMBER_FK1 (A_USERNAME)

INDIV_MEMBER

P	*	I_USERNAME	VARCHAR2 (100)
	*	FIRSTNAME	VARCHAR2 (50)
	*	LASTNAME	VARCHAR2 (50)
U	*	EMAIL	VARCHAR2 (100)
	*	JOINDATE	DATE
		TITLE	VARCHAR2 (15)
	*	GENDER	VARCHAR2 (23)
	*	ORGANIZATION	VARCHAR2 (100)
		WEBSITE	VARCHAR2 (100)
	*	COUNTRY	VARCHAR2 (32)
		YEAR_BIRTH	DATE
	*	RECEIVE_EMAILS_FLAG	CHAR (1)
	*	MEMBER_TYPE	CHAR (1)

INDIV_MEMBER_PK (I_USERNAME)
INDIV_MEMBER_EMAIL_AK1 (EMAIL)



CONF_COMMITTEE

PF	*	COMM_CONF_ID	NUMBER (*,0)
PF	*	COMM_MEMBER_USERNAME	VARCHAR2 (100)
	*	COMM_MEMBER_POSITION	VARCHAR2 (16)
	*	DATE_ASSIGNED	DATE

CONF_COMM_MEMBER_PK (COMM_CONF_ID, COMM_MEMBER_USERNAME)

CONF_COMM_CONF_ID_FK2 (COMM_CONF_ID)
CONF_COMM_MEMBER_USERNAME_FK1 (COMM_MEMBER_USERNAME)

CONFERENCE

P	*	CONF_ID	NUMBER (*,0)
	*	CONF_NAME	VARCHAR2 (20)
		CONF_START_DATE	DATE
		CONF_END_DATE	DATE
	*	CONF_CITY	VARCHAR2 (100)
	*	CONF_COUNTRY	VARCHAR2 (32)
		CONF_SITE_NAME	VARCHAR2 (100)

CONF_PK (CONF_ID)

CONF_TRACKS

PF	*	TRACK_CONF_ID	NUMBER (*,0)
P	*	TRACK_NAME	VARCHAR2 (50)
F	*	TRACK_CHAIR	VARCHAR2 (100)
	*	SUBMISSION_DEADLINE	DATE
		NUMBER_SUBMISSIONS	NUMBER (4)
		NUMBER_ACCEPTED_PAPERS	NUMBER (2)

CONF_TRACK_PK (TRACK_CONF_ID, TRACK_NAME)

CONF_TRACK_CHAIR_FK1 (TRACK_CHAIR)
CONFERENCE_FK1 (TRACK_CONF_ID)

MEMB_ACADEMIC

PF	*	A_USERNAME	VARCHAR2 (100)
	*	PRIMARY_TEACH_FIELD	VARCHAR2 (100)
		DISS_TITLE	VARCHAR2 (200)
	*	DIRECTORY_FLAG	CHAR (3)
	*	AGREE_CODE_CONDUCT	CHAR (1)
	*	AGREE_CODE_RESEARCH	CHAR (1)

ACAD_MEMBER_PK (A_USERNAME)

ACAD_MEMBER_FK1 (A_USERNAME)

SIG

P	*	SIG_ABBREV_NAME	CHAR (12)
	*	SIG_FULL_NAME	VARCHAR2 (100)
	*	SIG_DESCRIPTION	VARCHAR2 (200)
	*	SIG_YEAR_FOUNDED	DATE
F		SIG_CURRENT_PRESIDENT	VARCHAR2 (100)
	*	SIG_ANNUAL_DUES	NUMBER (5,2)

SIG_PK (SIG_ABBREV_NAME)

SIG_PRESIDENT_FK1 (SIG_CURRENT_PRESIDENT)

MEMB_MISQE

PF	*	MISQE_USERNAME	VARCHAR2 (100)
	*	SCREEN_NAME	VARCHAR2 (50)
	*	MARITAL_STATUS	VARCHAR2 (9)
		ALTERNATE_EMAIL	VARCHAR2 (100)
		IM_HANDLE	VARCHAR2 (100)
		IM_TYPE	VARCHAR2 (22)

MISQE_MEMBER_PK (MISQE_USERNAME)

MISQE_MEMBER_FK1 (MISQE_USERNAME)

INDIV_MEMBER

P	*	I_USERNAME	VARCHAR2 (100)
	*	FIRSTNAME	VARCHAR2 (50)
	*	LASTNAME	VARCHAR2 (50)
U	*	EMAIL	VARCHAR2 (100)
	*	JOINDATE	DATE
		TITLE	VARCHAR2 (15)
	*	GENDER	VARCHAR2 (23)
	*	ORGANIZATION	VARCHAR2 (100)
		WEBSITE	VARCHAR2 (100)
	*	COUNTRY	VARCHAR2 (32)
		YEAR_BIRTH	DATE
	*	RECEIVE_EMAILS_FLAG	CHAR (1)
	*	MEMBER_TYPE	CHAR (1)

INDIV_MEMBER_PK (I_USERNAME)
INDIV_MEMBER_EMAIL_AK1 (EMAIL)

ORG_CONF_REGISTRATION

P	*	O_REG_ID	NUMBER (*,0)
F	*	O_REG_USERNAME	VARCHAR2 (100)
F	*	O_REG_CONF_ID	NUMBER (*,0)
	*	O_DATE_REGISTERED	DATE
	*	O_MAKE_REG_PUBLIC	CHAR (3)

ORG_CONF_REG_PK (O_REG_ID)

ORG_CONF_REG_CONF_ID_FK2 (O_REG_CONF_ID)
ORG_CONF_REG_USERNAME_FK1 (O_REG_USERNAME)

INDIV_CONF_REGISTRATION

P	*	I_REG_ID	NUMBER (*,0)
F	*	I_REG_USERNAME	VARCHAR2 (100)
F	*	I_REG_CONF_ID	NUMBER (*,0)
	*	I_DATE_REGISTERED	DATE
	*	I_REG_AUTHOR_FLAG	CHAR (1)
	*	I_AUTHOR_NBR_PAPERS	NUMBER (1)
	*	I_MAKE_REG_PUBLIC	CHAR (1)

INDIV_CONF_REG_PK (I_REG_ID)

INDIV_CONF_REG_CONF_ID_FK2 (I_REG_CONF_ID)
INDIV_CONF_REG_USERNAME_FK1 (I_REG_USERNAME)

MEMB_STUDENT

PF	*	S_USERNAME	VARCHAR2 (100)
	*	DISS_TITLE	VARCHAR2 (200)
	*	ANTIC_COMPLETION	DATE
		ADVISOR_NAME	VARCHAR2 (100)
		ADVISOR_EMAIL	VARCHAR2 (100)
	*	AGREE_CODE_CONDUCT	CHAR (3)

STUDENT_MEMBER_PK (S_USERNAME)

STUDENT_MEMBER_FK1 (S_USERNAME)

ORG_MEMBER

P	*	O_USERNAME	VARCHAR2 (100)
	*	ORG_MEMBER_TYPE	VARCHAR2 (7)
	*	ORGANIZATION_NAME	VARCHAR2 (200)
	*	JOINDATE	DATE
	*	CONTACT_FNAME	VARCHAR2 (50)
	*	CONTACT_LNAME	VARCHAR2 (50)
U	*	CONTACT_EMAIL	VARCHAR2 (100)
		WEBSITE	VARCHAR2 (200)
	*	CITY	VARCHAR2 (100)
	*	COUNTRY	VARCHAR2 (32)
	*	PHONE	VARCHAR2 (15)
		FAX	VARCHAR2 (15)
	*	IP_ADDRESS_RANGE_1	VARCHAR2 (50)

ORG_MEMBER_PK (O_USERNAME)
ORG_MEMBER_EMAIL_AK1 (CONTACT_EMAIL)

ORG_MEMB_INST_AIS

PF	*	AISINST_USERNAME	VARCHAR2 (100)
		LIBRARY_CONTACT_NAME	VARCHAR2 (100)
		PRIMARY_CONTACT	VARCHAR2 (100)
		CONFERENCE_ATTENDEE	VARCHAR2 (100)
		CONFERENCE_PREFERENCE	VARCHAR2 (5)
	*	RECEIVE_EMAILS_FLAG	CHAR (1)

AISINST_MEMBER_PK (AISINST_USERNAME)

AISINST_MEMBER_FK1 (AISINST_USERNAME)

INST_AIS_RESEARCH_AREAS

PF	*	RA_USERNAME	VARCHAR2 (100)
P	*	RA_AREA_ORDER_NBR	NUMBER (1)
	*	RA_AREA_DESCRIPTION	VARCHAR2 (100)

INSTIT_AIS_RA_PK (RA_USERNAME, RA_AREA_ORDER_NBR)

RA_USERNAME_FK1 (RA_USERNAME)

INDIV_MEMBER_RENEWAL

P	*	I_RENEWAL_ID	NUMBER (*,0)
F	*	I_RENEWAL_MEMB_USERNAME	VARCHAR2 (100)
	*	I_RENEWAL_DATE	DATE
	*	I_RENEWAL_PERIOD_YRS	NUMBER (1)
	*	I_RENEWAL_REGION	VARCHAR2 (13)

INDIV_MEMB_RENEWAL_PK (I_RENEWAL_ID)

INDIV_RENEWAL_MEMB_USERNAME_FK1 (I_RENEWAL_MEMB_USERNAME)

SIG_MEMBERSHIP

P	*	SIG_MEMBERSHIP_ID	NUMBER (*,0)
F	*	RENEWAL_TRANSACTION	NUMBER (*,0)
F	*	SIG_ID	CHAR (12)
	*	DATE_JOINED	DATE

SIG_MEMBERSHIP_PK (SIG_MEMBERSHIP_ID)

SIG_MEMB_RENEWAL_TRANS_FK1 (RENEWAL_TRANSACTION)
SIG_MEMB_SIG_ID_FK2 (SIG_ID)

INST_AIS_CONTACTS

PF	*	IAC_USERNAME	VARCHAR2 (100)
P	*	IAC_CONTACT_ORDER_NBR	NUMBER (1)
	*	IAC_CONTACT_NAME	VARCHAR2 (100)
	*	IAC_CONTACT_EMAIL	VARCHAR2 (100)
		IAC_CONTACT_PHONE	VARCHAR2 (15)
		IAC_CONTACT_FAX	VARCHAR2 (15)

IAC_PK (IAC_USERNAME, IAC_CONTACT_ORDER_NBR)

IAC_USERNAME_FK1 (IAC_USERNAME)

ORG_MEMBER_RENEWAL

P	*	O_RENEWAL_ID	NUMBER (*,0)
F	*	O_RENEWAL_MEMB_USERNAME	VARCHAR2 (100)
	*	O_RENEWAL_DATE	DATE
	*	O_RENEWAL_PERIOD_YRS	NUMBER (1)
	*	O_RENEWAL_REGION	VARCHAR2 (15)

ORG_MEMB_RENEWAL_PK (O_RENEWAL_ID)

ORG_RENEWAL_USERNAME_FK1 (O_RENEWAL_MEMB_USERNAME)

ORG_ALT_IP_ADDRESSES

PF	*	O_IP_USERNAME	VARCHAR2 (100)
P	*	IP_ADDRESS_ORDER_NBR	NUMBER (1)
	*	IP_ADDRESS_RANGE	VARCHAR2 (50)

ORG_IP_ADDR_PK (O_IP_USERNAME, IP_ADDRESS_ORDER_NBR)

ORG_IP_USERNAME (O_IP_USERNAME)