**Student Id: \_\_\_\_\_\_\_\_\_\_\_\_ Student name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**ERD for Online Bets**



1. **Each online member may have a number of wallets (accounts). Each wallet contains the member’s id and the amount of money they have in this wallet (account).**
2. **A member places bets on sporting events actions. Examples of sporting events actions include: a particular horse winning a race, two teams drawing a soccer match, a particular team winning the rugby world cup.**
3. **Any number of members can lay a bet on a particular action e.g. several members bet on Manchester united to beat Chelsea.**
4. **Any number of different actions can be assigned odds for a particular sporting event. e.g New Zeland to win rugby world cup odds 6/4, Ireland to win rugby world cup odds 4/1.**
5. **Records of all movements of money in or out a wallet’s balance are recorded in a transaction table.**
6. **There are a pre-defined number of transaction types. Transaction types include for example, with drawl of money, lodgment of money, expenditure on a bet, receipts from a win on a bet.**

**Exam Rules**

Use the cairns\kilross server to complete this exam. Use the database with your id followed by sem1exam as the database for this exam. E.g. “s000001sem1exam”. **Note the tables already exist in your database.**

# *Examination continued over page*

**Question 1 Indexes - 50 marks**

**Part 1 20 marks**

* 1. Create a stored procedure **(call it stat1a)** which will create statistics (**call the mm\_stats**) on the city column in the member table.

**2 marks**

* 1. Create a stored procedure **(call it second1b)** which will show these statistics you have just created.

**3 marks**

* 1. Examine the statistics shown below and then put in a block comment in the stored procedure **second1b** to answer these questions on these statistics.

**15 marks**

* + 1. How many rows are sampled in the member table?
    2. How many steps have been taken?
    3. How many rows are in the table for the step Berger?
    4. What is the average length of a last name held in the last name column?
    5. Based on the length of the average length of last name state if you think this is a good column to index – Justify your answer.

**Name Updated Rows Rows Sampled Steps Density Average key length String**

MIDX Mar 26 2014 22000 22000 450 0.563 34.45455 YES

(1 row(s) affected)

All density Average Length Columns

------------- -------------- -------------------------

0.3561905 34.45455 LastName

(1 row(s) affected)

RANGE\_HI\_KEY RANGE\_ROWS EQ\_ROWS DISTINCT\_RANGE\_ROWS AVG\_RANGE\_ROWS

-------------------------------------------------- ------------- -------------

Armstrong 0 50 0 50

Barlow 300 200 20 60

Becker 250 125 40 6.5

Berger 260 115 45 5.77778

Camacho 235 95 52 4.519231

# *Examination continued over page*

**Question 1 (continued)**

**Part 2**

**30 marks**

Using the table information below build the indexes required; to optimize this stored procedure

create proc MemberBets

as

select LastName, COUNT(\*)

from dbo.MemberTbl as m

inner join dbo.BetsTbl as b on

m.memberID=b.MemberID

group by LastName

**Information**

* There are on average ½ a million members and new members (on average a 500 per week) are added to the database
* The company takes approximately 10000 bets per week.
* On Average a member will place 5 bets per week.
* The bets table is the most heavily accessed table with a high number of reads being performed on it.

**Tasks**

* + 1. Using the information about these tables above create any necessary indexes for the above stored procedure.
    2. Script all the indexes you have created. Copy each of the scripts into a stored procedure **(call it secondexam\_q3)**

**5 marks**

* + 1. Put in a block comment before each index script stating the following
    2. Why you have chosen to put an index on the columns in this table
    3. Why you have chosen this column(s) for an index.
    4. Why you have chosen this type of index for this column.
    5. Why you have or not set the fill factor to the value you have chosen for this index.
    6. Why you have set or not set the PAD index for this index.

**15 marks**

* + 1. Create a filtered index to cover this query below.

**10 marks**

create proc vwidxp2b

as

SELECT ActionID,ActionDescription

FROM dbo.Action\_tbl

where Odds>5.0