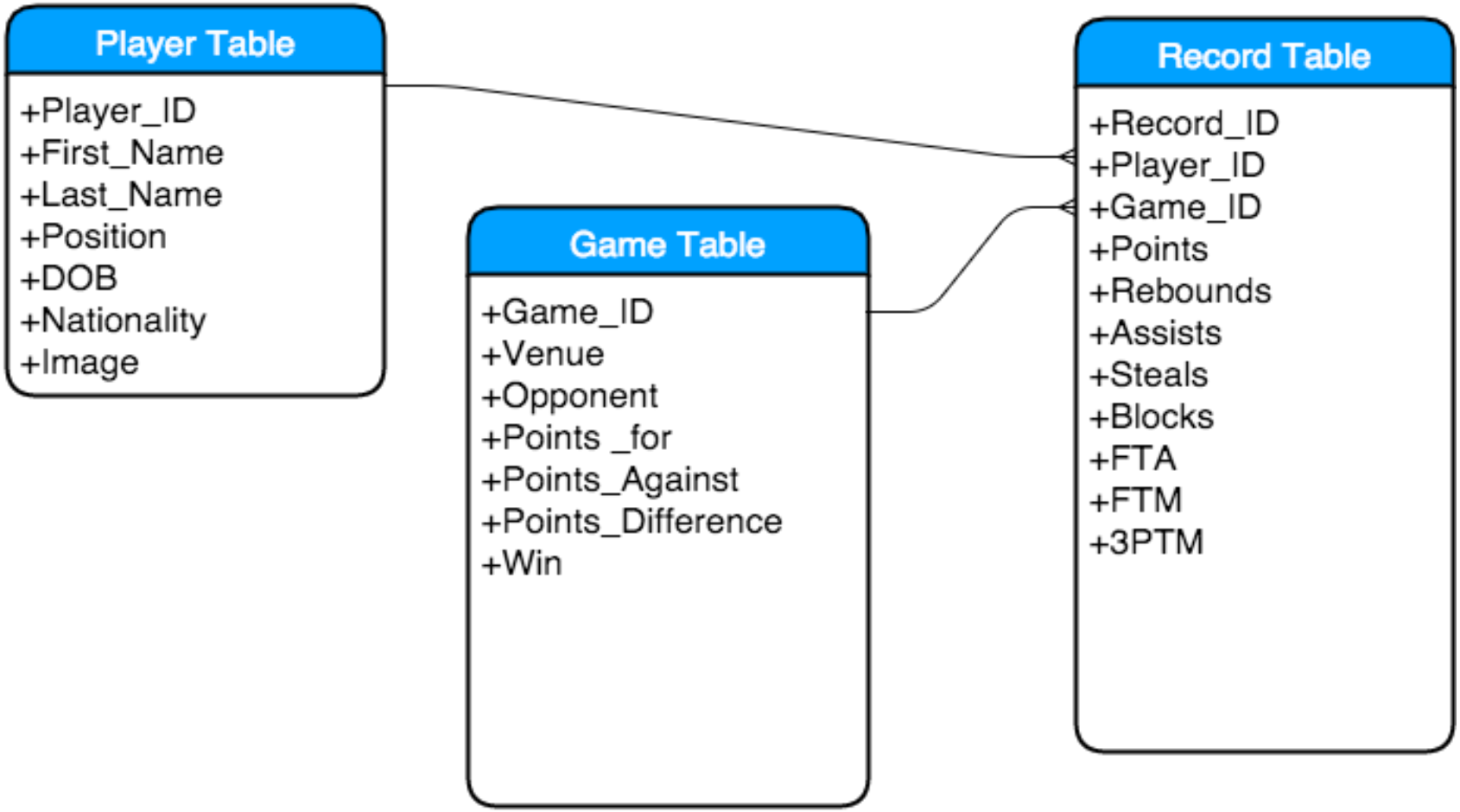
Criterion D: Product design—Overall structure



Players Table		
Field	**Data Type**	**Data Validation Check**
Player_ID	Number	Type check, Presence check
First_Name	Text	Type check, Presence check
Last_Name	Text	Type check, Presence check
Position	Text*	Type check, Presence check
Nationality	Text	Type check, Presence check
Image	OLE Object	None**
DOB	Date	Type check, Presence check

***Position is a combo box, this as in basketball the position can only be represented in the form of PG, SG,SF, PF,C, this ensure that only correct options can be chosen.**

****Client does not know if he has picture of everyone, hence no Presence check**

Game Table		
Game_ID	Number	Type check, Presence check
Venue	Alphanumeric	Type check, Presence check
Opponent	Alphanumeric	Type check, Presence check
Points_for	Number	Type check, Presence check, Range check *
Points_Against	Number	Type check, Presence check, Range check *
Points_Difference(calculated field)**	Number	Type check
Win(calculated field)***	Boolean	Type check

***The Range check for that these values are between 0 and 199 , this as based on past experiences of results it makes sense, even the point_difference can be up to 3 digits long as last year the biggest difference was 106 and the most points scored was 138 points.**

**** Calculated as follows: Points_for - Points_Against**

***** Calculated as follows: If Points_Difference > 0 then Yes else No**

Records Table		
Record_ID	Number	Type check, Presence check
Player_ID	Number	Type check, Presence check
Game_ID	Number	Type check, Presence check
Points	Number	Type check, Presence check
Rebounds	Number	Type check, Presence check, Range check *
Assists	Number	Type check, Presence check, Range check *
Steals	Number	Type check, Presence check, Range check *
Blocks	Number	Type check, Presence check, Range check *
Blocks	Number	Type check, Presence check, Range check *
FTA	Number	Type check, Presence check, Range check *
FTM	Number	Type check, Presence check, Range check *
3PTM	Number	Type check, Presence check, Range check *

***The Range check for these parameters to be between 0-99, as the highest records in any of the statistical categories are far off being 3 digit and this will likely remain so as it would not be realistic to achieve a three digit statistic achievement**

Basketball Image

Home

Main Switchboard page

Open Forms

Open Reports

Directs user to other two Switchboards

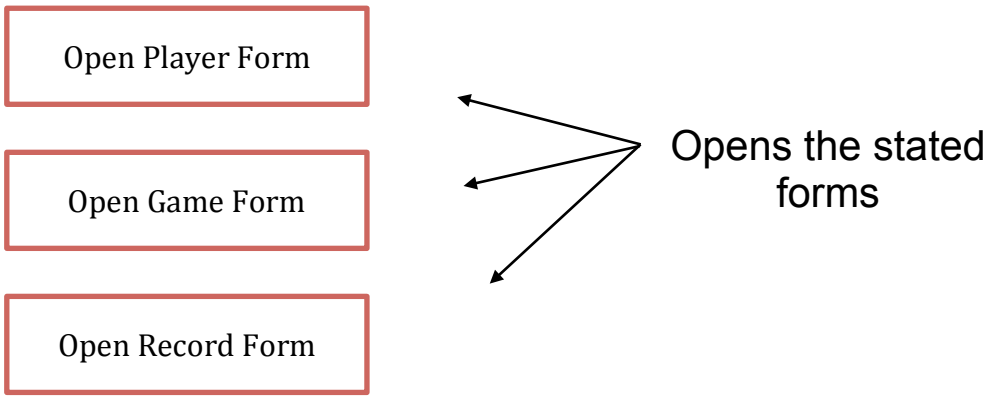
Image of Basketball team

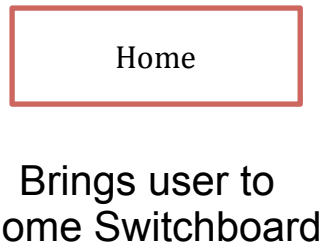
Closes Database

Quit Database

Basketball Image

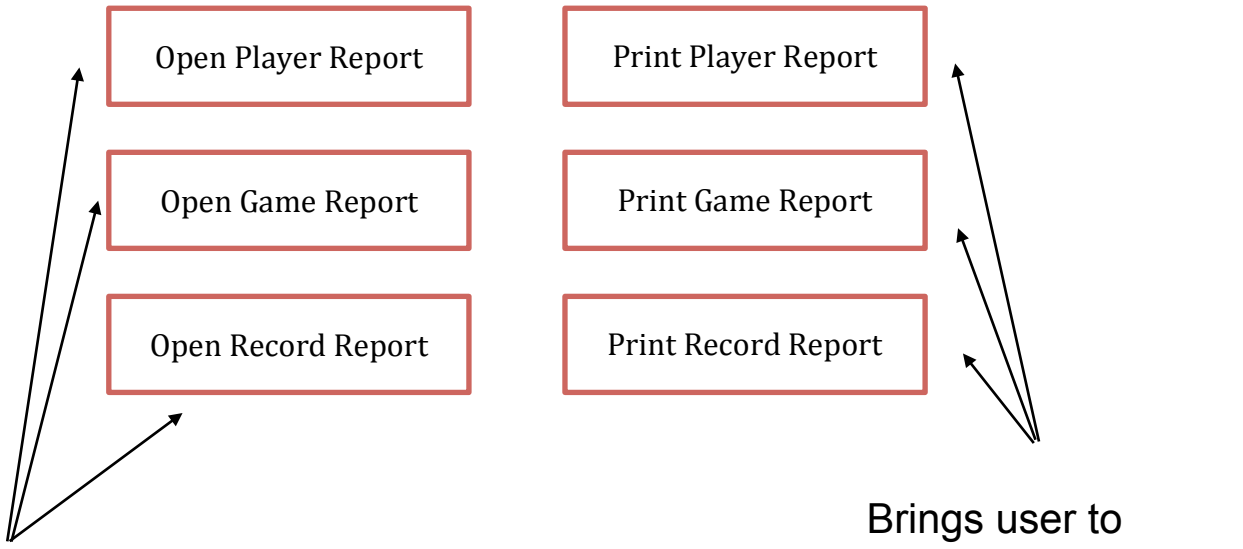
Forms





Basketball Image

Reports



Home

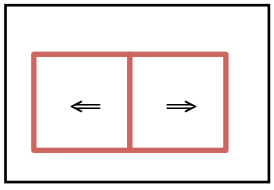
Brings user to Home Switchboard

Basketball Image

Player Form

Player_ID:
First_Name:
Last_Name:
Position:
DOB:
Nationality:
Image:

Fields



Brings user to next or previous record

Submit and Next

Submits Record Inputted and Next Record (creates one if there is not one)

Home

Brings user to Home Switchboard

Basketball Image

Game Form

Game_ID:
Venue:
Opponent:
Points_for:
Points_Against:

Fields

⇐ ⇒

Brings user to next or previous record

Submit and Next

Submits Record Inputted and Goes to Next Record

Home

Brings user to Home Switchboard

Basketball Image

Record Form

Record_ID:
Player_ID:
Game_ID:
Points:
Rebounds:
Assists:
Steals:
Blocks:
Fouls:
FTA:
FTM:
3PTM:

Fields

⇐ ⇒

Brings user to next or previous record

Submit and Next

Submits Record Inputted and Goes to Next Record

Home

Brings user to Home Switchboard

Basketball Image

Player Report

First Name:
Last Name:
Position:
DOB:
Nationality:

Fields

Image

Image of Player

Total Stats

Games Played	Pts	Rebs	Asts	Stls	Blks	FTA	FTM	3PTM

Calculated in Query Shown Later on

Average Stats

Games Played	Pts	Rebs	Asts	Stls	Blks	FTA	FTM	FT %	3PTM

Basketball Image

Game Report

Venue:

Opponent:

Points for:

Points Against:

Points Diff.:

Win:

Fields

Basketball Image

Record Report

Players Name:

Opponent:

Points:

Rebounds:

Assists:

Steals:

Blocks:

FTA:

FTM:

3PTM:

Fields

Calculation Query in Pseudo code

Gather the following Fields: Player_ID, Points, Rebounds, Assists, Steals, Blocks, FTM, FTA, 3PTM from the Record Table
Add the statistical catogeris mentioned above for each Player and save these as Total_Points, Total_Rebounds, Total _ Assists, Total _Steals, Total _Blocks, Total _FTM, Total _FTA, Total _3PTM

Count number of times each Player_ID occurs and save this value as Games_Played for each Player_ID

Get the average of these statistics for each player by dividing the total statistical values for each statistical catogery by the Games played for the specific Player for each Player, then saving the results as follows: Average_Points, Average_Rebounds, Average_ Assists, Average_Steals, Average_Blocks, Average_FTM, Average_FTA, Average_3PTM

Divide FTM by FTA multiplied by 100 and save this value as FT%

Output the following Player_ID, Total_Points, Total_Rebounds, Total _ Assists, Total _Steals, Total _Blocks, Total _FTM, Total _FTA, Total _3PTM, Average_Points, Average_Rebounds, Average_ Assists, Average_Steals, Average_Blocks, Average_FTM, Average_FTA, Average_3PTM, FT%

Sort by Ouput Player_ID from lowes to highest

Note all the Averages are rounded to 1 decimal

Data validation for results from query

For the statistical averages: The length check for these parameters are once again 1-2 digits long, as the highest records in any of the statistical categories are far off being 3 digit and this will likely remain so as it would not be realistic to achieve a three digit statistic achievement

For Free Throw Percentage: The length check for these parameters is once again 3-5 digits long, as the percentage will be given to 2 decimal points, e.g. 78.50% or 0.00% or 100.00%

Games Played Query in Pseudo code

Gather the following Fields: Player_ID from the Record Table and Games_Played for each of the Players_ID from the Calculation Query

Output First_Name of Player_ID (as Player_ID of Record Table is related to the Player_ID of the Player Table) along with their Games_Played

Sort Output by Games_Played from highest to lowest

Most Points in a game Query in Pseudo code

Gather the following Fields: Player_ID and Points from the Record Table

Output First_Name of Player_ID (as Player_ID of Record Table is related to the Player_ID of the Player Table) along with their Points for that game

Sort Output by Points from highest to lowest

Internal structure

List of resources and techniques

Resources	Details
Raw Basketball Data and Images	Gotten from Mr. B, which he got form the games official scoresheet and the recorded stats by the statistician. The images are gotten from the photographers of our school if there are any.
Microsoft Access 2013	Only works for windows (not available for mac)
Computer	Same as Mentioned in Analysis Stage

Techniques	Details
Relationship	Relating the primary key of different (three) table to reduce data redundancy
Use of graphic field	For images of players
Validation Checks	To check of values such as points or other statistics are numerical and are equal or larger than 0
Use of Queries	To be able to find the statistical totals and averages along with the most points from one game

	and total games played
Use of different Data Type	Such as text, date, number, Boolean, graphics, calculated fields
Use of Report	To be given at the end of a season/tournament or league with the statistics of all player along with all the results
Use of forms	So that data can be entered into the tables
Macros	Macros to reduce the need to repeat data, such as submitting and going to a the next record
Proficient design of reports and forms	Use of bottoms and navigation instructions

Test plan

Test item	Test data	Part of system tested	Expected outcome	Actual outcome	Comments	Ref in product
Cover page testing – REQUIRED ELEMENT FOR CRITERION G						
Web pages load from the cover page in three different locations	**File naming to ensure home page is called Index.htm**	**Links on cover page are relative**	**Loads as required from 3 different locations**	Works	The advice box was removed	
Product testing						

Validation Checks	Check if a negative number gets rejected such as -19 when inputting for a statistical category and name	Validation Checks	Values are rejected	Works	Displayed error message as wanted	
Macros And Buttons	Use the macro and buttons and see if it does what it is intended to do, such as automatically saving and going to the next record. Also test if buttons do their task as stated in the plan	Navigation	Macro and buttons work, does both expected tasks	Works		
Relationships	Whether the relationship are correct or not	Relationships	Field are related between table correctly	Works		
Queries/Calculations	Calculates the correct data based on its name. Will be tested for a set of data for several players.	Queries	Correct data is shown	Works		
Use of Reports	Creating Report for a specific player	Reports	Data is displayed in the correct manner and the data is calculated correctly	Works		
Use of forms	Inputting a set of data of a player	Forms	Data inputted is correctly shown in the appropriate table	Works		

Password	Input correct and incorrect password	Security	Password rejected if incorrect, accepted if correct	Works		
Images	Test an image for a inputting a players image into a form and see if appears in the report	Forms/reports	Should display image in report	Works	May be issue with different file type, however if the image is first open in paint and then copy and pasted when inputted, it works 100% of the time	

Agreement of client

I confirm that the requirement specification meets my needs and the designs above are appropriate for the creation of the product.

(Client)