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CREATE PROCEDURE [dbo].[DoTeamKODraw] (@Round INT, @Debug INT = 0)
AS

DECLARE @team_count INT,
        @power2 INT,
        @no_of_draws INT,
        @loop_counter INT,
        @home_draw_id INT,
        @away_draw_id INT,
        @home_draw_name VARCHAR(30),
        @away_draw_name VARCHAR(30),
        @home_away BIT,
        @SeasonID INT,
        @draw_count INT

DECLARE @Ts TABLE
(
    DrawNo INT,
    ID INT,
    TName VARCHAR(30),
    Selected INT
)

DECLARE @RemainingTeams TABLE
(
    DrawNo INT,
    ID INT,
    TName VARCHAR(30)
)

DECLARE @Draw TABLE
(
    HomeID INT,
    HomeName VARCHAR(30),
    AwayID INT,
    AwayName VARCHAR(30)
)

/* Get CurrentSeason */
SELECT @SeasonID = ID
FROM Season
WHERE CurrentSeasonFlag = 1

SELECT @draw_count = COUNT(*)
FROM TeamKODraw
WHERE RoundID = @Round

IF @draw_count <> 0
BEGIN
    RAISERROR ('The Draw for this round has already been made.', 16, 1)
    RETURN -1
END

/* Get the number of Teams involved */
SELECT @team_count = COUNT(*)
FROM Team
WHERE InTeamKO = 1 AND SeasonID = @SeasonID

/* Put the Teams involved into a table so that we
   can reference them later */
INSERT INTO @Ts
(DrawNo, ID, TName, Selected)
SELECT ROW_NUMBER() OVER (ORDER BY ID), ID, TeamName, 0
FROM Team
WHERE InTeamKO = 1

/* Get nearest Power of 2 number (not sure what the correct name
   of this is but its the opposite of "n to the Power or 2"
   so if we pass 133 we get 128, pass 99 we get 64 etc. */
SELECT @power2 = dbo.fn_GetClosestPowerOf2(@team_count)

IF @Debug = 1 PRINT '@power2 = ' + CAST(@power2 AS VARCHAR)

/* Calculate how many draws we will need to do, this depends on
   if we have an exact Power2 no. or we need to get it down
   to a Power2 number. For example if we have 70 teams in the draw
   we will need to get this down to 64, so 70-64 = 6, 6 x 2 = 12 so
   we will need a preliminary round of 12 teams. 6 of these will be
   KO'd which will leave 64. */
IF @power2 <> @team_count
    SELECT @no_of_draws = ((@team_count - @power2) * 2)
ELSE

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SELECT @no_of_draws = (@team_count / 2)

IF @Debug = 1 PRINT 'no_of_draws = ' + CAST(@no_of_draws AS VARCHAR)

/* Insert ALL teams involved into a separate table, this table will be
   rebuilt each time a team is selected. This is needed because the RAND
   function needs consecutive input. */
INSERT INTO @RemainingTeams
(DrawNo, ID, TName)
SELECT ROW_NUMBER() OVER (ORDER BY ID), ID, TName
FROM @Ts
WHERE Selected = 0;

SET @home_away = 0 -- Set to Home
SET @loop_counter = 1

/* Loop for however many draws we need */
WHILE (@loop_counter <= @no_of_draws)
BEGIN

    IF @home_away = 0

        /* HOME TEAM */
        BEGIN
            /* Select a Random team using "(1 + CONVERT(INT, (@team_count - 1 + 1)
            * RAND()))" */
            SELECT @home_draw_id = ID, @home_draw_name = TName
            FROM @RemainingTeams
            WHERE DrawNo = (1 + CONVERT(INT, (@team_count - 1 + 1) * RAND()))

            /* Update the original List to say this team has been selected */
            UPDATE @Ts SET Selected = 1 WHERE ID = @home_draw_id;

            /* Insert our selected team into a separate table, we will
            update it with the Away Team thats drawn out next */
            INSERT INTO @Draw
            (HomeID, HomeName)
            SELECT @home_draw_id, @home_draw_name

            /* Rebuild the Remaining Teams table */
            -----
            DELETE FROM @RemainingTeams;

            INSERT INTO @RemainingTeams
            (DrawNo, ID, TName)
            SELECT ROW_NUMBER() OVER (ORDER BY ID), ID, TName
            FROM @Ts
            WHERE Selected = 0;
            -----

            /* Re-Assign @team_count cos the number of teams has now been reduced
            by 1. @team_count is used as part of the RAND function */
            SET @team_count = @@ROWCOUNT
            SET @home_away = 1
        END
    ELSE
        /* AWAY TEAM */
        BEGIN
            /* Select a Random team using "(1 + CONVERT(INT, (@team_count - 1 + 1)
            * RAND()))" */
            SELECT @away_draw_id = ID, @away_draw_name = TName
            FROM @RemainingTeams
            WHERE DrawNo = (1 + CONVERT(INT, (@team_count - 1 + 1) * RAND()))

            /* Update the original List to say this team has been selected */
            UPDATE @Ts SET Selected = 1 WHERE ID = @away_draw_id;

            /* Update the record we added previously for the Home Team
            with the Away Team. */
            UPDATE @Draw
            SET AwayID = @away_draw_id,
                AwayName = @away_draw_name
            WHERE HomeID = @home_draw_id

            /* Rebuild the Remaining Teams table */
            -----
            DELETE FROM @RemainingTeams;

            INSERT INTO @RemainingTeams

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        (DrawNo, ID, TName)
        SELECT ROW_NUMBER() OVER (ORDER BY ID), ID, TName
        FROM @Ts
        WHERE Selected = 0;
-----

        SET @team_count = @@ROWCOUNT
        SET @home_away = 0
    END

    SET @loop_counter = @loop_counter + 1
END

INSERT INTO TeamKODraw
(RoundID, TeamAID, TeamAName, TeamBID, TeamBName)
SELECT @Round, HomeID, HomeName,
       AwayID, AwayName FROM @Draw
-----

CREATE FUNCTION [dbo].[fn_GetClosestPowerOf2](@my_number INT) RETURNS INT
AS
BEGIN

DECLARE @value INT,
        @counter INT,
        @result INT,
        @saved_result INT

    SET @counter = 1
    SET @value = 2
    SET @result = 0
    SET @saved_result = 0

    WHILE @result <= @my_number
    BEGIN
        SET @saved_result = @result
        SELECT @result = POWER(@value, @counter)

        SET @counter = @counter + 1
    END

    RETURN @saved_result

END

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