



Hugmynd að lausn á miðmisserisprófinu

GAGNASAFNSFRÆÐI
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Dæmi 1

Finnið þau lið sem unnu leiki sína með a.m.k. þriggja marka mun.

Lausn:

```
SELECT homeID AS winnerID
FROM Matches
WHERE homeGoals-awayGoals>=3
      UNION
SELECT awayID AS winnerID
FROM Matches
WHERE awayGoals-homeGoals>=3;
```

gefur

```
winnerID
-----
BRA
COL
CRO
ESP
FRA
GER
NED
SUI
```

Dæmi 2

Finnið þau lið sem skoruðu mark að loknum venjulegum leiktíma (sem er 90 mínútur).

Lausn:

```
SELECT DISTINCT teamID
FROM Goals
WHERE minute>90;
```

gefur

```
teamId
-----
BRA
CHI
COL
SUI
GER
ARG
POR
NED
JPN
GRE
NGA
ALG
BEL
USA
```

Dæmi 3

Finnið nöfnin á þeim löndum með bil í nafninu sínu (t.d. 'Suður Kórea').

Lausn:

```
SELECT name
FROM Teams
WHERE name LIKE '% %';
```

gefur

```
name
-----
Costa Rica
Ivory Coast
Bosnia and Herzegovina
Korea Republic
```

Dæmi 4

Finnið nöfnin á þeim liðum sem kepptu í riðli A (Group A).

Lausn:

```
SELECT name
FROM Teams
WHERE groupID=(
    SELECT id
    FROM Groups
    WHERE name='A'
);
```

gefur

```
name
-----
Brazil
Croatia
Cameroon
Mexico
```

Dæmi 5

Finnið þá leikmenn og nafn á liði þeirra sem skoruðu mark fyrir lið sem lék í riðli B.

Lausn:

```
SELECT DISTINCT name,player
FROM Teams,Goals
WHERE teamID=code AND groupID=(
    SELECT id
    FROM Groups
    WHERE name='B'
);
```

gefur

name	player
-----	-----
Australia	Cahill
Australia	Jedinak
Chile	Alexis
Chile	Beausejour
Chile	Ch. Arangu
Chile	Valdivia
Chile	Vargas
Spain	Alonso
Spain	David Vill
Spain	Mata
Spain	Torres
Netherland	Blind
Netherland	De Vrij
Netherland	Fer
Netherland	Huntelaar
Netherland	Memphis
Netherland	Robben
Netherland	Sneijder
Netherland	V. Persie
Netherland	Wijnaldum

Dæmi 6

Finnið þau lið skoruðu jafnmörg mörk sem heimalið í ólíkum leikjum.

Lausn:

```
SELECT DISTINCT M1.homeID,M2.homeID
FROM Matches AS M1, Matches AS M2 ON M1.homeGoals=M2.homeGoals
WHERE M1.id<>M2.id AND M1.homeID<>M2.homeID;
```

gefur

homeId	homeId
-----	-----
BRA	CHI
BRA	COL
BRA	FRA
BRA	BIH
MEX	ESP
MEX	URU
MEX	ENG
MEX	GHA
MEX	RUS
MEX	HON
MEX	ARG
MEX	NGA
MEX	BEL

... (mjög langt, líklega er ég að misskilja þessa spurningu)

Dæmi 7

Finnið þá leikmenn sem skoruðu tvö eða fleiri mörk í einum leik og þá leiki þar sem þetta gerðist.

Lausn:

```
SELECT player,matchID
FROM Goals
GROUP BY matchID,player
HAVING count(*)>=2;
```

gefur

player	matchId
-----	-----
Neymar Jr	1
Robben	3
V. Persie	3
Benzema	10
Muller	13
MandZukiC	18
L. Suarez	23
E. Valenci	26
Neymar Jr	33
Jackson M.	37
Shaqiri	41
Messi	43
Musa	43
James	50
Djabou	54
Ozil	54
Kroos	61
Schurrle	61

Dæmi 8

Finnið leikmann, lið og mínútu fyrir hvert mark sem var skorað í leik milli Sviss og Frakklands ('SUI' og 'FRA').

Lausn:

```
SELECT player,teamID,minute
FROM Goals
WHERE matchid=(
    SELECT id
    FROM Matches
    WHERE (homeID='SUI' AND awayID='FRA') OR (homeID='FRA' AND awayID='SUI')
);
```

gefur

player	teamId	minute
-----	-----	-----
Dzemaili	SUI	81
Khaka	SUI	87
Giroud	FRA	17

Matuidi	FRA	18
Valbuena	FRA	40
Benzema	FRA	67
Sissoko	FRA	73

Dæmi 9

Finnið markamínútuna, þ.e. þá mínútu þar sem flest mörk voru skoruð.

Lausn:

```
SELECT minute
FROM Goals
GROUP BY minute
HAVING count(*)=(
    SELECT max(goalsScored)
    FROM (
        SELECT count(*) AS goalsScored
        FROM Goals
        GROUP BY minute
    )
);
```

gefur

minute

82

Dæmi 10

Finnið markahæsta leikmanninn í þýska landsliðinu ('GER') og hve mörg mörk hann skoraði.

Lausn:

```
SELECT player, count(*)
FROM Goals
WHERE teamID='GER'
GROUP BY player
HAVING count(*)=(
    SELECT max(goalsScored)
    FROM (
        SELECT count(*) AS goalsScored
        FROM Goals
        WHERE teamID='GER'
        GROUP BY player
    )
);
```

gefur

player	count(*)
-----	-----
Muller	5

Dæmi 11

Finnið markahæsta leikmann í hverju liði og hve mörg mörk hann skoraði.

Lausn:

```
SELECT player,teamID,max(goalsScored)
FROM (
    SELECT teamID,player,count(*) AS goalsScored
    FROM Goals
    GROUP BY teamID,player
)
GROUP BY teamID;
```

gefur

player	teamID	max(goalsScored)
-----	-----	-----
Djabou	ALG	3
Messi	ARG	4
Cahill	AUS	2
De Bruyne	BEL	1
Dzeko	BIH	1
Neymar Jr	BRA	4
Alexis	CHI	2
B. Wilfrie	CIV	2
Matip	CMR	1
James	COL	6
Ruiz B.	CRC	2
MandZukiC	CRO	2
E. Valenci	ECU	3
Rooney	ENG	1
Alonso	ESP	1
Benzema	FRA	3
Muller	GER	5
A. Ayew	GHA	2
Samaras	GRE	1
Costly	HON	1
Reza	IRN	1
Balotelli	ITA	1
Honda	JPN	1
H M Son	KOR	1
A Guardado	MEX	1
V. Persie	NED	4
Musa	NGA	2
Nani	POR	1
Kerzhakov	RUS	1
Shaqiri	SUI	3
L. Suarez	URU	2
Dempsey	USA	2

ATH: Þessi lausn gefur aðeins einn af markahæstum leikmönnum, ég sá ekki fyrir mér einfalda leið til að birta alla markahæstu leikmenn liðs þegar þeir voru tveir eða fleiri.

Dæmi 12

Finnið það lið sem vann flesta leiki.

Lausn:

```
CREATE TEMP VIEW winnerTable AS
SELECT homeID AS Winner, count(*) AS Wins, 1 AS atHome
FROM Matches
WHERE homeGoals > awayGoals
GROUP BY Winner
      UNION
SELECT awayID AS Winner, count(*) AS Wins, 0 AS atHome
FROM Matches
WHERE awayGoals > homeGoals
GROUP BY Winner;

SELECT Winner, sum(Wins) AS totalWins
FROM winnerTable
GROUP BY Winner
HAVING totalWins = (
    SELECT max(totalWins)
    FROM (
        SELECT Winner, sum(Wins) AS totalWins
        FROM winnerTable
        GROUP BY Winner
    )
);
```

gefur

Winner	totalWins
-----	-----
GER	6

Önnur lausn sem notar ekki CREATE VIEW (því við lærðum það aldrei):

```
SELECT Winner, sum(Wins) AS totalWins
FROM (
    SELECT homeID AS Winner, count(*) AS Wins, 1 AS atHome
    FROM Matches
    WHERE homeGoals > awayGoals
    GROUP BY Winner
      UNION
    SELECT awayID AS Winner, count(*) AS Wins, 0 AS atHome
    FROM Matches
    WHERE awayGoals > homeGoals
    GROUP BY Winner
)
GROUP BY Winner
HAVING totalWins = (
    SELECT max(totalWins)
    FROM (
        SELECT Winner, sum(Wins) AS totalWins
        FROM (
```



```

SELECT homeID AS Winner, count(*) AS Wins, 1 AS atHome
FROM Matches
WHERE homeGoals>awayGoals
GROUP BY Winner
UNION
SELECT awayID AS Winner, count(*) AS Wins, 0 AS atHome
FROM Matches
WHERE awayGoals>homeGoals
GROUP BY Winner
)
GROUP BY Winner
);

```

Dæmi 13

Finnið þá leiki þar sem sjálfsmark var skorað.

Lausn:

```

SELECT id
FROM Matches, (
    SELECT matchID, teamID, count(*) AS goals
    FROM Goals
    GROUP BY matchID, teamID
) ON Matches.id=matchID AND homeID=teamID
WHERE homeGoals<>goals;

```

gefur

```

id
-----
1
10
11
46
53
54

```

ATH: Hér geri ég ráð fyrir því að ef sjálfsmark var skorað þá voru mörk liðs ekki jöfn markaskorurum þess liðs í þeim leik. Þetta þýðir samt að t.d. ef bæði lið skora eitt sjálfsmark hvort þá myndi það ekki koma fram í þessu svari.