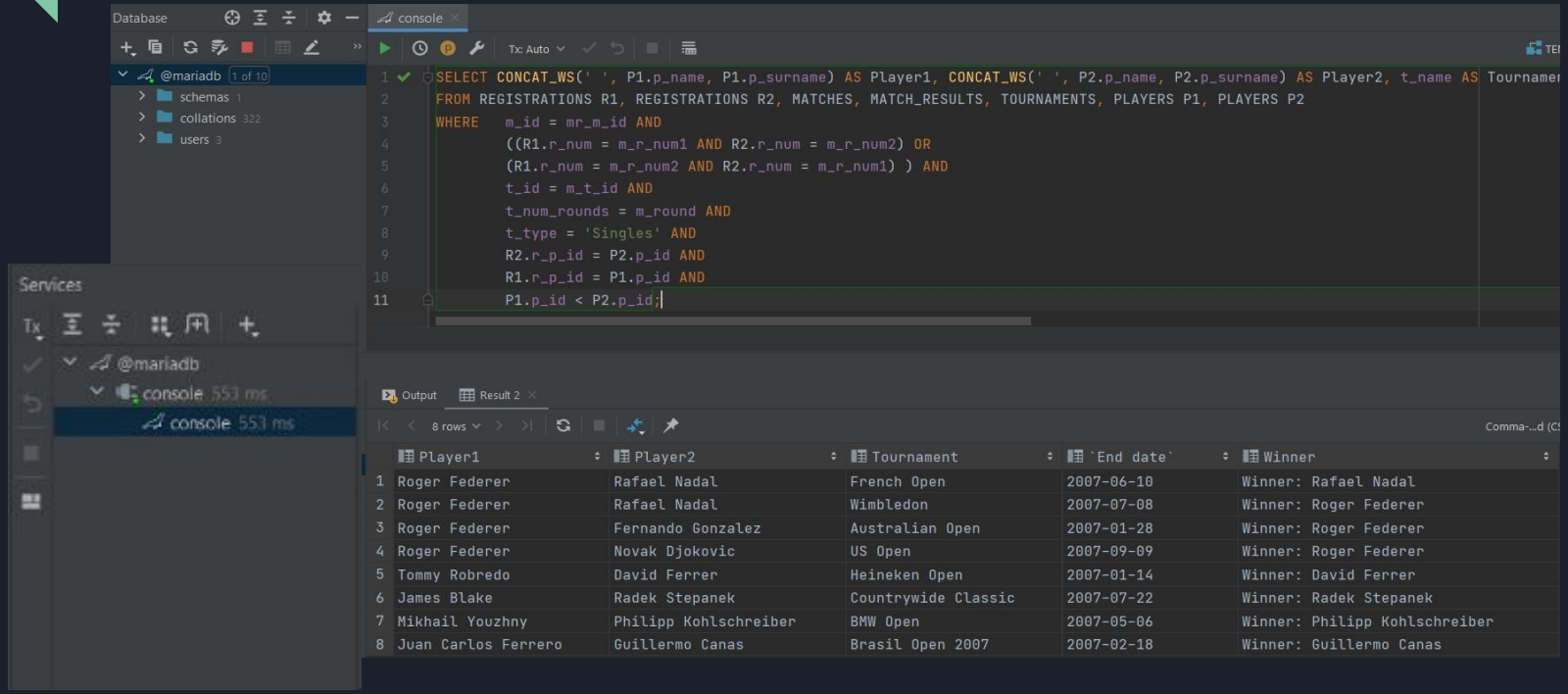
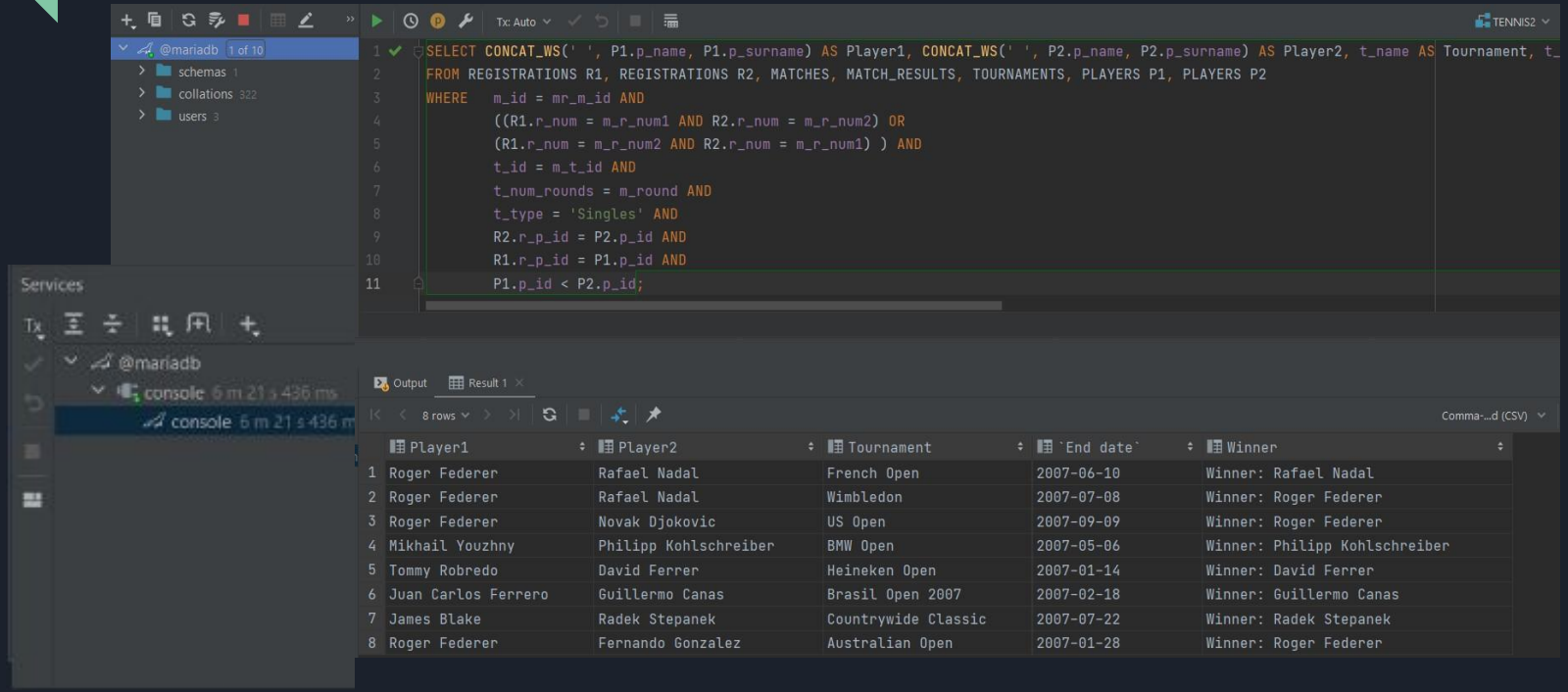
P9. Work in pairs. Index Importance

Albert Perelló
Francesc Borràs

TENNIS.sql


Database
console
@mariadb 1 of 10
schemas 1
collations 322
users 3
Tx: Auto
SELECT CONCAT_WS(' ', P1.p_name, P1.p_surname) AS Player1, CONCAT_WS(' ', P2.p_name, P2.p_surname) AS Player2, t_name AS Tournamer
FROM REGISTRATIONS R1, REGISTRATIONS R2, MATCHES, MATCH_RESULTS, TOURNAMENTS, PLAYERS P1, PLAYERS P2
WHERE m_id = mr_m_id AND
((R1.r_num = m_r_num1 AND R2.r_num = m_r_num2) OR
(R1.r_num = m_r_num2 AND R2.r_num = m_r_num1)) AND
t_id = m_t_id AND
t_num_rounds = m_round AND
t_type = 'Singles' AND
R2.r_p_id = P2.p_id AND
R1.r_p_id = P1.p_id AND
P1.p_id < P2.p_id;
Services
@mariadb
console 553 ms
console 553 ms
Output
Result 2
8 rows
Player1 Player2 Tournament `End date` Winner
1 Roger Federer Rafael Nadal French Open 2007-06-10 Winner: Rafael Nadal
2 Roger Federer Rafael Nadal Wimbledon 2007-07-08 Winner: Roger Federer
3 Roger Federer Fernando Gonzalez Australian Open 2007-01-28 Winner: Roger Federer
4 Roger Federer Novak Djokovic US Open 2007-09-09 Winner: Roger Federer
5 Tommy Robredo David Ferrer Heineken Open 2007-01-14 Winner: David Ferrer
6 James Blake Radek Stepanek Countrywide Classic 2007-07-22 Winner: Radek Stepanek
7 Mikhail Youzhny Philipp Kohlschreiber BMW Open 2007-05-06 Winner: Philipp Kohlschreiber
8 Juan Carlos Ferrero Guillermo Canas Brasil Open 2007 2007-02-18 Winner: Guillermo Canas

TENNIS_NOPK_NOFK.sql



	Player1	Player2	Tournament	`End date`	Winner
1	Roger Federer	Rafael Nadal	French Open	2007-06-10	Winner: Rafael Nadal
2	Roger Federer	Rafael Nadal	Wimbledon	2007-07-08	Winner: Roger Federer
3	Roger Federer	Novak Djokovic	US Open	2007-09-09	Winner: Roger Federer
4	Mikhail Youzhny	Philipp Kohlschreiber	BMW Open	2007-05-06	Winner: Philipp Kohlschreiber
5	Tommy Robredo	David Ferrer	Heineken Open	2007-01-14	Winner: David Ferrer
6	Juan Carlos Ferrero	Guillermo Canas	Brasil Open 2007	2007-02-18	Winner: Guillermo Canas
7	James Blake	Radek Stepanek	Countrywide Classic	2007-07-22	Winner: Radek Stepanek
8	Roger Federer	Fernando Gonzalez	Australian Open	2007-01-28	Winner: Roger Federer

INDEXING

Indexing makes columns **faster** to query by creating pointers to where data is stored within a **database**. ... If the table was ordered alphabetically, searching for a name could happen a lot **faster** because we could skip looking for the data in certain rows.

Creating a new database

With PK and FK(P09):

```
CREATE DATABASE P09;

CREATE TABLE IF NOT EXISTS `customer` (
  `CUST_CODE` varchar(6) NOT NULL,
  `CUST_NAME` varchar(40) NOT NULL,
  `CUST_CITY` varchar(35) DEFAULT NULL,
  `WORKING_AREA` varchar(35) NOT NULL,
  `CUST_COUNTRY` varchar(20) NOT NULL,
  `GRADE` decimal(10,0) DEFAULT NULL,
  `OPENING_AMT` decimal(12,2) NOT NULL,
  `RECEIVE_AMT` decimal(12,2) NOT NULL,
  `PAYMENT_AMT` decimal(12,2) NOT NULL,
  `OUTSTANDING_AMT` decimal(12,2) NOT NULL,
  `PHONE_NO` varchar(17) NOT NULL,
  `AGENT_CODE` varchar(6) DEF
  KEY `CUSTCITY` (`CUST_CITY`
  KEY `CUSTCITY_COUNTRY` (`CU
) ENGINE=MyISAM DEFAULT CHARS

CREATE TABLE IF NOT EXISTS `o
  `ORD_NUM` decimal(6,0) NOT
  `ORD_AMOUNT` decimal(12,2)
  `ADVANCE_AMOUNT` decimal(12
  `ORD_DATE` date NOT NULL,
  `CUST_CODE` varchar(6) NOT
  `AGENT_CODE` varchar(6) NOT
  `ORD_DESCRIPTION` varchar(6
) ENGINE=MyISAM DEFAULT CHARS
```

```
CREATE TABLE IF NOT EXISTS `agents` (
  `AGENT_CODE` varchar(6) NOT NULL DEFAULT '',
  `AGENT_NAME` varchar(40) DEFAULT NULL,
  `WORKING_AREA` varchar(35) DEFAULT NULL,
  `COMMISSION` decimal(10,2) DEFAULT NULL,
  `PHONE_NO` varchar(15) DEFAULT NULL,
  `COUNTRY` varchar(25) DEFAULT NULL,
  PRIMARY KEY (`AGENT_CODE`)
) ENGINE=MyISAM DEFAULT CHARSET=latin1;

CREATE TABLE IF NOT EXISTS `daysorder` (
  `ORD_NUM` decimal(6,0) NOT NULL,
  `ORD_AMOUNT` decimal(12,2) NOT NULL,
  `ADVANCE_AMOUNT` decimal(12,2) NOT NULL,
  `ORD_DATE` date NOT NULL,
  `CUST_CODE` varchar(6) NOT NULL,
  `AGENT_CODE` varchar(6) NOT NULL,
  `ORD_DESCRIPTION` varchar(60) NOT NULL
) ENGINE=MyISAM DEFAULT CHARSET=latin1;
```

Without PK and FK(P09_2):

```
CREATE DATABASE P09_2;

CREATE TABLE IF NOT EXISTS `customer` (
  `CUST_CODE` varchar(6) NOT NULL,
  `CUST_NAME` varchar(40) NOT NULL,
  `CUST_CITY` varchar(35) DEFAULT NULL,
  `WORKING_AREA` varchar(35) NOT NULL,
  `CUST_COUNTRY` varchar(20) NOT NULL,
  `GRADE` decimal(10,0) DEFAULT NULL,
  `OPENING_AMT` decimal(12,2) NOT NULL,
  `RECEIVE_AMT` decimal(12,2) NOT NULL,
  `PAYMENT_AMT` decimal(12,2) NOT NULL,
  `OUTSTANDING_AMT` decimal(12,2) NOT NULL,
  `PHONE_NO` varchar(17) NOT NULL,
  `AGENT_CODE` varchar(6) N
) ENGINE=MyISAM DEFAULT CHA

CREATE TABLE IF NOT EXISTS
  `ORD_NUM` decimal(6,0) NO
  `ORD_AMOUNT` decimal(12,2
  `ADVANCE_AMOUNT` decimal(
  `ORD_DATE` date NOT NULL,
  `CUST_CODE` varchar(6) NO
  `AGENT_CODE` varchar(6) N
  `ORD_DESCRIPTION` varchar
) ENGINE=MyISAM DEFAULT CHA
```

```
CREATE TABLE IF NOT EXISTS `agents` (
  `AGENT_CODE` varchar(6) NOT NULL DEFAULT '',
  `AGENT_NAME` varchar(40) DEFAULT NULL,
  `WORKING_AREA` varchar(35) DEFAULT NULL,
  `COMMISSION` decimal(10,2) DEFAULT NULL,
  `PHONE_NO` varchar(15) DEFAULT NULL,
  `COUNTRY` varchar(25) DEFAULT NULL
) ENGINE=MyISAM DEFAULT CHARSET=latin1;

CREATE TABLE IF NOT EXISTS `daysorder` (
  `ORD_NUM` decimal(6,0) NOT NULL,
  `ORD_AMOUNT` decimal(12,2) NOT NULL,
  `ADVANCE_AMOUNT` decimal(12,2) NOT NULL,
  `ORD_DATE` date NOT NULL,
  `CUST_CODE` varchar(6) NOT NULL,
  `AGENT_CODE` varchar(6) NOT NULL,
  `ORD_DESCRIPTION` varchar(60) NOT NULL
) ENGINE=MyISAM DEFAULT CHARSET=latin1;
```

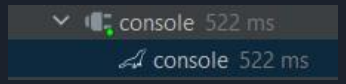
Advanced query

```
SELECT CONCAT_WS('  /',C.CUST_CODE, C.CUST_NAME) as Client,
        CONCAT(O.ORD_NUM, '  /', (DATE_FORMAT(O.ORD_DATE, '%W %D %M %Y'))) as Comanda,
        CONCAT(SUBSTRING(O.ORD_AMOUNT, 1, 4), ' $') as Preu,
        CONCAT_WS('/', A.AGENT_CODE, A.AGENT_NAME) as Agent
FROM customer C, orders O, agents A
WHERE C.CUST_CODE = O.CUST_CODE AND
        C.AGENT_CODE = A.AGENT_CODE AND
        O.ORD_AMOUNT between 1000 and 3000
ORDER BY O.ORD_DATE;
```

Advanced query response

	Client	Comanda	Preu	Agent
1	C00015 /Stuart	200100 /Tuesday 8th January 2008	1000 $	A003 /Alex
2	C00013 /Holmes	200115 /Friday 8th February 2008	2000 $	A003 /Alex
3	C00006 /Shilton	200104 /Thursday 13th March 2008	1500 $	A004 /Ivan
4	C00019 /Yearannaidu	200110 /Tuesday 15th April 2008	3000 $	A010 /Santakumar
5	C00005 /Sasikant	200106 /Sunday 20th April 2008	2500 $	A002 /Mukesh
6	C00021 /Jacks	200103 /Thursday 15th May 2008	1500 $	A005 /Anderson
7	C00012 /Steven	200102 /Sunday 25th May 2008	2000 $	A012 /Lucida
8	C00016 /Venkatpati	200112 /Friday 30th May 2008	2000 $	A007 /Ramasundar
9	C00009 /Ramesh	200133 /Sunday 29th June 2008	1200 $	A002 /Mukesh
10	C00020 /Albert	200111 /Thursday 10th July 2008	1000 $	A008 /Alford
11	C00001 /Micheal	200101 /Tuesday 15th July 2008	3000 $	A008 /Alford
12	C00025 /Ravindran	200105 /Friday 18th July 2008	2500 $	A011 /Ravi Kumar
13	C00015 /Stuart	200127 /Sunday 20th July 2008	2500 $	A003 /Alex
14	C00024 /Cook	200129 /Sunday 20th July 2008	2500 $	A006 /McDen
15	C00025 /Ravindran	200130 /Wednesday 30th July 2008	2500 $	A011 /Ravi Kumar
16	C00007 /Ramanathan	200135 /Tuesday 16th September 2008	2000 $	A010 /Santakumar
17	C00003 /Martin	200122 /Tuesday 16th September 2008	2500 $	A004 /Ivan
18	C00008 /Karolina	200121 /Tuesday 23rd September 2008	1500 $	A004 /Ivan
19	C00018 /Fleming	200125 /Friday 10th October 2008	2000 $	A005 /Anderson

With PK and FK(P09):



Without PK and FK(P09_2):