

Storage and File Structure – Practice Questions Solution

1. Consider a relational database table which is stored in a database file using fixed length records and a free list. The file appears initially as follows:

				free list
header				
record 0	Alexei Yashin	Senators	19	
record 1				
record 2	Matts Sundin	Maple Leafs	13	
record 3	Mark Messier	Canucks	11	
record 4				
record 5	Jeff Hackett	Canadiens	31	
record 6				
record 7	Paul Kariya	Mighty Ducks	9	
record 8	Garth Snow	Canucks	30	

Show the structure of the file after the following actions:

- a) Insert (Sergei Fedorov, Red Wings, 91)
 - b) Delete the record containing 'Matts Sundin'. Assume that this is done before part a) is carried out.
 - c) Insert (Patrick Roy, Avalanche, 33). This should be done on the file structure after part b) has been applied.
2. List an advantage and disadvantage of each of the following strategies for storing a relational database:
 - i) store each table in a separate file,
 - ii) store multiple tables (or even the entire database) in a single file.
 3. Define the term *pinned record*.
 4. Explain why the allocation of records to disk blocks can affect database-system performance significantly.