what operation has the most impact on performance? Propose an optimization for each query (ex. adding an index, changing the order of items in the SQL) that you think will improve the performance of the query.

1. **select** title, description, name  
   **from** film   
   **join** **language** **on** film.language\_id = language.language\_id   
   limit **300**
2. **select** customer\_id   
   **from** rental   
   **join** inventory **on** rental.inventory\_id = inventory.inventory\_id  
   **join** film **on** inventory.film\_id = film.film\_id  
   **where** film.title = **'MONTEZUMA COMMAND'**
3. **select** first\_name, last\_name, **sum**(amount)  
   **from** customer   
   **join** payment **on** customer.customer\_id = payment.customer\_id  
   **group** **by** customer.customer\_id, first\_name, last\_name
4. **select** **distinct** actor.\*  
   **from** actor   
   **join** film\_actor **on** actor.actor\_id = film\_actor.actor\_id  
   **join** film **on** film\_actor.film\_id = film.film\_id  
   **where** film.rental\_rate = **.99**
5. **select** first\_name, last\_name, address, city, country, postal\_code, phone   
   **from** customer   
   **join** address **on** customer.address\_id = address.address\_id   
   **join** city **on** address.city\_id = city.city\_id   
   **join** country **on** city.country\_id = country.country\_id   
   **where** customer\_id **in** (**select** customer\_id **from** rental **where** return\_date **is** **null**)

Using the distributed database described by the diagram below, specify the minimum types of operations the database must support to perform the following tasks. These operations include remote requests, remote transactions, distributed transactions, and distributed requests.

1. At Site C
   * Get a list of all products
2. At Site C
   * Print a customer invoice
3. At Site A
   * Create a new order for a customer. This involves creating the invoice and lines as well as updating the product and customer.
4. At Site B
   * Get a list of all customers
5. At Site B
   * Get a list of all the products.