Netaji Subhas University of Technology

Practical Report

Database Management Systems

Computer Science Engineering (Internet of Things)

Semester 3

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Department of Computer Science & Engineering

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1 Introduction

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2 The Sea

2.1 Schema

Consider the following relational schema:

```
SAILORS (sid, sname, rating, date_of_birth)

BOATS (bid, bname, color)

RESERVES (sid, bid, date, time_slot)
```

2.2 Queries

1. Find sailors who've reserved at least one boat
   (a) Relational Algebra

$$\sigma_{\text{date\_of\_birth}<1960}(\sigma_{\text{sid}\in\text{sid}}(SAILORS \bowtie RESERVES))$$

   (b) SQL

```sql
SELECT E.EmpFname, E.EmpLname, P.EmpPosition
FROM EmployeeInfo E INNER JOIN EmployeePosition P ON
E.EmpID = P.EmpID AND P.EmpPosition IN ('Manager');
```

2. Find names of sailors who've reserved a red or a green boat in the month of March.
   (a) Relational Algebra

$$\sigma_{\text{bname=red}\vee\text{bname=green}}(\sigma_{\text{date=March}}(BOATS \bowtie RESERVES)) \bowtie SAILORS$$

   (b) SQL

```sql
SELECT sname
FROM SAILORS
WHERE sid IN
    (SELECT sid
    FROM RESERVES
    WHERE bid IN
        (SELECT bid
        FROM BOATS
        WHERE bname = 'red' OR bname = 'green')
    AND date = 'March')
```

References

[1] A. Einstein, "Zur Elektrodynamik bewegter Körper. (German) [On the electrodynamics of moving bodies]," *Annalen der Physik*, vol. 322, no. 10, pp. 891–921, 1905.