Question 5: Database Normalization

By Francis Hackenberger, Gurvir singh, Sukhdeep Singh

# Un-normalized fields

GRP\_NUM, ROOM\_NUM, ROOM\_DESC, ROOM\_COST\_PER\_DAY, ROOM\_CAPACITY, FROM\_DATE, TO\_DATE, COST\_PER\_STUD, STUD\_NAME, STUD\_ID, STUD\_PHONE, SCHOOL\_ID, SCHOOL\_NAME, SCHOOL\_LOC, RESORT\_ID, RESORT\_NAME, RESORT\_LOC, RESORT\_PHONE, RESORT\_DESC

Some calculated fields that have been removed (they belong in queries not tables): NUM\_OF\_STUDENTS, TOTAL\_COST, ADDIT\_COSTS

# 1NF: First Normal Form

Removed all repeating groups and added prime keys

RESORT\_ID, ROOM\_NUM, ROOM\_DESC, ROOM\_COST\_PER\_DAY, ROOM\_CAPACITY, RESORT\_NAME, RESORT\_DESC, RESORT\_LOC, RESORT\_PHONE

GRP\_NUM, STUD\_ID, STUD\_NAME, STUD\_PHONE, SCHOOL\_ID, SCHOOL\_NAME, SCHOOL\_LOC

RESORT\_ID, ROOM\_NUM, GRP\_NUM, FROM\_DATE, TO\_DATE, COST\_PER\_STUD

# 2NF: Second Normal Form

Split all fields that did not belong to both parts of concatenated prime keys into another table

ROOM\_NUM, RESORT\_ID, ROOM\_DESC, ROOM\_COST\_PER\_DAY, ROOM\_CAPACITY

RESORT\_ID, RESORT\_NAME, RESORT\_DESC, RESORT\_LOC, RESORT\_PHONE

RESORT\_ID, GRP\_NUM, FROM\_DATE, TO\_DATE, COST\_PER\_STUD

GRP\_NUM, STUD\_ID, ROOM\_NUM

STUD\_ID, STUD\_NAME, STUD\_PHONE, SCHOOL\_ID, SCHOOL\_NAME, SCHOOL\_LOC

# 3NF: Third Normal Form

Remove all transitive dependencies between fields

ROOM\_NUM, RESORT\_ID, ROOM\_DESC, ROOM\_COST\_PER\_DAY, ROOM\_CAPACITY

RESORT\_ID, RESORT\_NAME, RESORT\_DESC, RESORT\_LOC, RESORT\_PHONE

RESORT\_ID, GRP\_NUM, FROM\_DATE, TO\_DATE, COST\_PER\_STUD

GRP\_NUM, STUD\_ID, ROOM\_NUM

STUD\_ID, STUD\_NAME, STUD\_PHONE, SCHOOL\_ID

SCHOOL\_ID, SCHOOL\_NAME, SCHOOL\_LOC