Adam Smith

CS 3810

HW #1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Proj\_Num | Proj\_Name | Emp\_Num | Emp\_Name | Job\_Code | Job\_Chg\_Hour | Proj\_Hours | Emp\_Phone |
| 1 | Hurricane | 101 | John D. Newson | EE | 85 | 13.3 | 653-234-3245 |
| 1 | Hurricane | 105 | David F. Schwann | CT | 60 | 16.2 | 653-234-1123 |
| 1 | Hurricane | 110 | Anne R. Ramoras | CT | 60 | 14.3 | 615-233-5568 |
| 2 | Coast | 101 | John D. Newson | EE | 85 | 19.8 | 653-234-3254 |
| 2 | Coast | 108 | June H. Sattlemeir | EE | 85 | 17.5 | 905-554-7812 |
| 3 | Satellite | 110 | Anne R. Ramoras | CT | 62 | 11.6 | 615-233-5568 |
| 3 | Satellite | 105 | David F. Schwann | CT | 26 | 23.4 | 653-234-1123 |
| 3 | Satelite | 123 | Mary D. Chen | EE | 85 | 19.1 | 615-233-5432 |
| 3 | Satellite | 112 | Allecia R. Smith | BE | 85 | 20.7 | 615-678-6879 |

1. How many records does the file contain? **9 records**

2. How many fields are there per record? **10 fields**

3. If you wanted to produce a listing of the file contents by last name or area code, how would you alter the file structure? **Replace Emp\_Name column with 3 new columns: Emp\_FName, Emp\_MInitial, Emp\_LName.**

4. What data redundancies do you detect? How could those redundancies lead to anomalies? **Everything is redundant except for Job\_Chg\_Hour and Proj\_Hours. Taking Emp\_Name for example, if Anne R. Ramoras gets married and her last name changes to Anne R. Smith this will need to be updated. If it is not updated in every applicable record then this will create anomalies.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Student Id | Student Name | Class Code | Class Name | Credit Hrs | Teacher | Class Days | Class Time | Room |
| 9001111111 | Adam | 11111 | Class A | 4 | Teacher A | MW | 10-12 | 111 |
| 9001111111 | Adam | 22222 | Class B | 4 | Teacher B | MW | 1-3 | 222 |
| 9002222222 | Kendra | 11111 | Class A | 4 | Teacher A | MW | 10-12 | 111 |
| 9002222222 | Kendra | 33333 | Class C | 3 | Teacher C | TH | 2-4 | 333 |
| 9003333333 | Max | 11111 | Class A | 4 | Teacher A | MW | 10-12 | 111 |
| 9003333333 | Max | 22222 | Class B | 4 | Teacher B | MW | 1-3 | 222 |

**Discussion: The only thing not redundant about this table is the correspondence between Students, classes, teachers, times, and rooms. If a student’s name is changed and wasn’t updated in all records this would cause anomalies. A better design would be to have a Student table, Class table, Instructor table, and Schedule table. The Schedule table would have Student\_Id, Class\_Code, Instructor\_Id, Days, Start\_Time, End\_Time, and Room\_Id.**