

Uses of Tables

- keep track of all your friends
 - with information on each friend
- quickly search for a certain friend in one or more ways
 - “Find all the dirt on my BFF ‘David Johansen’”
 - Find all the dirt on the BFF whose number is 000-0000”

High Level Description

- a table is a bunch of records
- records - a group of related data
 - each record has a bunch of fields
- field - some value in each record
 - e.g. name, phone#, birthday, etc.

Implementing a Table in C++

Creating a record

- create a struct/class to represent a record of data

```
1 struct Student {  
2     string name;  
3     int IDNum;  
4     float GPA;  
5     string phone;  
6 };  
7
```

Create a table

- create an array/vector of your struct
- or create an entire class

```
1 vector<Student> table;
```

```
1 class TableOfStudents {  
2 public:  
3     TableOfStudents();    // construct a new table  
4     ~TableOfStudents();  // destruct our table  
5     void addStudent(Student &stud); // add a new Student  
6     Student getStudent(int s);    // retrieve Students from slot s
```

```
7     int searchByName(string &name); // name is a searchable field
8     int searchByPhone(int phone); // phone is a searchable field
9 private:
10    vector<Student> m_students;
11 };
```