

**Assignment 1**  
Due Sep 7

Produce code with the following functionality:

1. Implements a B-tree with order 3.
2. Each element in the B-tree contains a Student object. A Student has a name, red id and a GPA
3. You can add elements to a B-tree. When you add a new Student object to the list is maintained in lexicographical order by student's name.
4. Given a k, your code returns the k'th element in the B-tree in lexicographical order. If k is out-of-bounds throw an exception.
5. Print out the Red Ids of the students that are on probation (GPA less than 2.85) that in the list from the front to the back of the list.
6. Print out the names of the students with GPA of 4.0 in the list from the back to the front of the list.

You are to write your own B-tree code. Do not use any existing library or code to implement the B-tree.

**Grading**

	Percent of Grade
Working Code	30%
Comments	20%
Quality of Code	25%
Object-oriented code	25%

**Working Code.** How well your code meets the functional requirements listed above accounts for 30% of the grade for the assignment.

**Comments.** Having the appropriate comments in your code will count for 20% of the grade.

**Quality of Code.** Having good quality of code counts for 25% of the grade. Quality of code includes formatting, names and appropriate of code constructs.

**Object-Oriented Code.** How object-oriented your code is will determine 25% of your grade.

For more information about comments and quality of code see the lecture notes of past CS535 courses. For even more information see Code Complete, McConnell, Microsoft Press, 1993. Smalltalk programmers can look at Smalltalk Best Practice Patterns, Beck, Prentice Hall PTR, 1997

### **What to Turn in**

Turn in hard copy of your code. Depending on the state of Covid electronic submission may be allowed.

Note to C++ people. C++ classes are have a header and an implementation. Place the header and implementation in separate files. Do not include any implementation in the header file.

### **Crashers**

Turn in the assignment, but indicate on your paper that you are a crasher.

### **Late Policy**

An assignment turned in 1-7 days late, will lose 5% of the total value of the assignment per day late. Once a solution to an assignment has been posted or discussed in class, the assignment will no longer be accepted. Late penalties are always rounded up to the next integer value.