



## Assignment #1 Discussions



C++ Object Oriented Programming

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## Design Problems

1. Should readfile() or writefile() be a member function? Why or why not?
2. Do you think union() or intersect() should return an object? Will it be better if they don't have any side effects?
3. Many functions seem to be not extremely necessary, ex. cleanup(), especially for the required test program? Why should we write something that is not necessary? Should a program always be of some use?
4. Many statements repeat themselves many times in the program? Do you try to summarize them into a common function? What are the benefits?
5. Did you see the point that we are trying to make the CSet Object as independent as possible to the test program, i.e. main()? Why are we doing this?

## Design Problems

6. What is the advantage to separate the CSet as an independent module from the debugging point of view? from the reuse point of view? Try separate CSet.cpp and CSet.h from your project and put them into another project: Let's write another program that model NTOUCS 91 class as a set, model all the courses offered as sets (ex. C++, Data Structure, ...). Try finding out who are taking C++ and Data Structure and Combinatorics at the same time. Try finding out who were taking C++ 93 and C++ 92 and Data Structure 91. Try finding out who are registered this semester but do not take any courses offered by the department.
- ★ What come to your mind when you think of your CSet class? A graph model or a lot of variables and vector template?

## Design Problems

7. Did you notice any differences between const function and normal member function? Why should I declare it as const? It is const anyway. I wrote it therefore I know it does not change anything in the object. Why bother declare it as const?
8. Why do you write program codes with functions? What are the benefits?

# Technical Problems

## 1. Differentiate pointers:

```
vector<int> intVector;  
vector<int> *ptrToVector;  
vector<int *> iPtrVector;  
vector<int>::iterator iterIntVector;  
vector<int *>::iterator iterIPtrVector;  
int *iPtr;
```

## 2. Reading/writing binary files

Binary stream concept

Unformatted I/O concept

## 3. Where should my variable be declared?

local ... member variable ... global

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# Technical Problems

## 4. No pointer is the best programming practice !!!!!

a. Java legend?

b. Why pointers?

i. Indirection make your program flexible and powerful.

Pointers is source of polymorphism in C. It save space and time.

ii. In industry, space and time == money! You keep your job if you can meet the requirements under the constraint of budgets.

iii. System software cares about space and time extremely.

c. Why no pointers? You are afraid of strange astray bugs. You don't have the correct semantics, i.e. syntax-model mapping

d. Why can't you detect pointer errors in you previous program assignments? You did not learn well and you did not build safety nets.

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