EECS 381 Questionnaire: Interests, Background, & Experience

Name:_____

Student ID:_____ Enrolled or Waitlisted: _____

Undergrad/Grad_____ College (Engin/LSA): _____Major:_____

Uniqname Email:_____

The purpose of this questionnaire is to allow me plan the enrollment and content of the course more intelligently, especially given the considerable variation in student background and schedules and the fluctuating content of our own courses.

A. Goals

1. How many more semesters are you planning on being here?

2. What do you want to do after you get your degree? What kind of work are you interested in?

3. What other EECS courses are you taking (or planning to take) this semester?

B. Programming courses and experience

1. List the instructor, semester, and year in which you took EECS 280 and 281, and the grade that you got. This is important - not just for this course enrollment, but it helps my effort to track how well our programming courses work. Please be as accurate as you can.

2. Please check off which of the following EECS courses you have already taken:

280 ___ 281/380 ___ 283 ___ 285 ___ 370 ___ 373 ___

481 ___ 482 ___ 483 ___ 484 ___ 485 ___ 486 ___ 487 ___ 489 ___ 490 ___ 492 ___ 493 ___ 494 ___

3. Have you done non-trivial programming in C ? If so, when and where (course, job, etc)? What was the most complex thing you did in C?

4. Which other languages besides C and C++ have you worked in? Briefly say where (e.g. course or job).

5. Describe any non-course experience (e.g. work, hobby) that involved programming or software design and development.

6. Which is your preferred programming environment or platform?

C. Experience with specific C and C++ concepts that you may or may not have encountered. If the answer is yes, please say when and where (i.e. which course, at a job, etc.).

1. Have you written data structure code in C that uses a void pointer to store data of any type?

2. Have you written C or C++ code that uses function pointers? How about function pointer casts?

3. Have you written code in C (not C++) that implements a linked-list data structure?

4. Have you written code in C++ that implements (a) a linked-list class template that (b) uses iterator objects?

5. Have you written C++ code that defines and uses your own function objects ("functors")?

6. Have you used *containers* (e.g. vector, map) from the C++ Standard Library?

7. Have you used *algorithms* (e.g. for_each, random_shuffle) from the C++ Standard Library?

D. Knowledge of specific C and C++ concepts. ***Answer what you can in a few sentences each. If you don't know the concept, just say so. This is a survey, not a test.***

1. What is the difference between NULL and the null byte?

2. What is the difference between the following two ways of defining a constant for the value of π?

```
#define PI 3.14159265
const double pi = 3.14159265;
```

3. Which of the following three C++ code fragments is dangerous and why? Which will compile without errors?

```
char input[20];
cin >> input;
```

```
char * input;
cin >> input;
```

```
string input;
cin >> input;
```

4. What does the linker do? What is a common linker error?

5. Explain what C++'s new and delete do. How are they different from C's malloc and free?

6. How do C++ templates work? That is, what does the compiler do with a template?

7. State three design rules that should be followed when one designs a C++ class.

8. Write a few sentences that explain the following advice: "If you have to write a destructor function, you almost certainly have to also write both a copy constructor and an assignment operator."

8. Explain virtual functions in a few sentences.