

PPL – Homework 5

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Due on Nov 10

Abstract

Homework 5 covers object-oriented programming.

1 Requirement

1. Separate your declaration into `.h` and `.cpp`.
2. Zip all your files into one file named **your-auburn-username.zip**, e.g., `zzg0009.zip`. Improper naming incurs 10 points penalty.
3. Accepted languages are C++ and Python.

2 ADT queue

(40 points) *Implement* a first-in first-out (FIFO) `queue` class. Public interface includes `push`, `pop_front`, `size` and `empty`. You may assume that the data stored in `queue` is *integer*. Signature of the interface is as follows.

For C++,

```
int push(int);
int pop_front();
int size();
bool empty();
```

For Python,

```
def push(val): return val
def pop_front(): pass
def size(): pass
def empty(): pass
```

3 ADT complex

(60 points) Implement an ADT for complex numbers, including operations for addition, subtraction, multiplication and divisions, and getters and setters for image and real part. Assume that the image and real part are floating numbers. Math operations need to be implemented through operator overloading.