EECE.3220: Data Structures

Spring 2019

Key Questions
Dynamic Allocation (Lecture 18)

QUESTIONS

1. Briefly review the use of pointers, including the duality between arrays and pointers.
2. Describe the `new` and `delete` operators.
3. How does allocation using `new` differ for allocating one variable or allocating an array?
4. Explain how `new` can be used to dynamically allocate objects and how the constructor for an object can be invoked as the object is allocated.
5. Explain the use of the `->` operator to access the members of an object through a pointer.
6. How does deallocation using `delete` differ if you're deallocating one variable or deallocating an array?

EXAMPLES

1. What does the program below print?

```
int main(){
    int *iPtr, *jPtr, i;
    iPtr = new int;
    jPtr = new int(3);
    double *dPtr;
    dPtr = new double[6];
    *iPtr = 7;
    cout << *iPtr << ',' << *jPtr << endl;
    for(i=0; i<6; i++)
        dPtr[i] = 5;
    for(i=0; i<6; i++)
        cout << (*dPtr)++ << ' ';
    cout << endl;
    for(i=0; i<6; i++)
        cout << dPtr[i] << ' ';
    return 0;
}
```