

13 October 2022

1. **Warm up:** Answer the following questions.

- (a) If uncompiled code has `int a = 10; int* b = &a;` then what will the compiled code produce, if the next line is each of the following:

```
cout << b << endl;    cout << *b << endl;    cout << &b << endl;
cout << **b << endl;  cout << &&b << endl;  cout << *&b << endl;
```

- (b) How is memory deallocated after setting a variable? For example, after `int a = 10;`, how can the memory used by this `int` be deallocated?

2. This question is about *classes*. Define a class `pointType` to be like a point on the 2-dimensional plane. It has:

- two `double` members called `x` and `y`, representing the position of the point (do not initialize these values),
- a function `eDist` that computes the (Euclidean) distance between two points,
- a function `mDist` that computes the Manhattan distance between two points.

For example, if `p` is at (1, 2) and `q` is at (4, 6), then `p.eDist(q)` returns 5 and `p.mDist(q)` returns 7. Include error handling for the exception when computing distance, the `pointType` does not have initialized values.