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Object-Oriented Programming (CMPS373-01)

Professor D’Antonio

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HW 1 – Written Part

2. C++ uses both virtual functions and templates to create polymorphism.

3. A. Converting a base object to a derived object

4. True; Answered with the help of [Destructors - cppreference.com](https://en.cppreference.com/w/cpp/language/destructor)

5. Function overloading is when multiple methods in a class are declared with the same name but have different parameters to set them apart from one another. Function overriding is when the signature of a method is the same in both the parent class and child class. Cited from: [Overriding vs Overloading in Java | DigitalOcean](https://www.digitalocean.com/community/tutorials/overriding-vs-overloading-in-java)

6. In C++, a predicate is an object that has a “bool operator()” member or a function that returns a Boolean value. Cited from: [class - What is predicate in C++? - Stack Overflow](https://stackoverflow.com/questions/5921609/what-is-predicate-in-c)

7. A function object is an object that can be called as if it is a function. Cited from: [Function Objects (boost.org)](https://www.boost.org/sgi/stl/functors.html)

8. Unlike a function, a function object is a type, which enables it to be used as a template parameter. Cited from: [Function Objects in the C++ Standard Library | Microsoft Learn](https://learn.microsoft.com/en-us/cpp/standard-library/function-objects-in-the-stl?view=msvc-170)

9. Polymorphism involves using one method from a particular class to perform a wide variety of tasks for all the different child classes which have a method of the same name (as hinted by the fact that polymorphism means “many forms”). Function overloading just involves declaring methods with the same name multiple times in one class, with the only difference being what parameters they have. Answered with the help of [java - Polymorphism vs Overriding vs Overloading - Stack Overflow](https://stackoverflow.com/questions/154577/polymorphism-vs-overriding-vs-overloading) and [C++ Polymorphism (w3schools.com)](https://www.w3schools.com/cpp/cpp_polymorphism.asp)

10. Namespaces are used to prevent name conflicts when working on large projects in C++. Cited from: [Namespaces - cppreference.com](https://en.cppreference.com/w/cpp/language/namespace)

11. False