

CS 247 Spring 2014

Assignment 1 Question 3 --- Specifications

Q3 [20 marks] ADT Design

You are to design an ADT for valid values for UW course marks. A valid course mark is either an **immutable** integer between 0 and 100 or is one of the following non-numeric grades: CR, NCR, WD, WF. The meanings of the non-numeric grades are as follows:

CR	Credit granted
NCR	No credit granted, failure recorded
WD	Withdrew, no credit granted
WF	Withdrew/Failure, no credit granted (value 32)

Your answer to this question is in several parts. Read all of the parts of the question before starting your answer.

- a) Provide a complete class declaration of your ADT, including nonmember functions, const, overloaded operations, default arguments, and prohibited functions. For full credit, your class declaration should be designed to simplify client code and to avoid errors in client code.
- b) For each member and nonmember function that you declare, give a use case for why that function would be useful to a client programmer who is using your ADT.
- c) If you are implementing your own default constructor, explain your choice of initial value for UW course marks. If you are not implementing your own default constructor, explain why.
- d) Explain briefly your rationale for making each function in your ADT a member vs. a nonmember function.