



Vantage 140 CPSC 110

How problem domain impacts HtDD+ HtDF

Week 4

Lesson Plan:

Learn to decide when to design a data definition to solve a problem and what kind of data definition to design.

Intended Learning Outcomes:

- Develop understanding of when to include a data definition
- Develop understanding of the impact of a problem domain on a data definition and function design
- Develop understanding of compound data definitions

Required Materials:

- 1) Week 5 handout (2 problem versions)

Lesson Procedure		
	Resource(s)	Time
Class setup		5 mins
Split student into 5 groups of at least 3 students per group. Hand out one problem handout for each group to work on. 2 languages per group.		
Main Task 1 – Solution Design	Week 3 handout – 2 problem versions	15-20 mins
Have groups work on a solution to their problem. Problem description does not explicitly instruct students to do a data definition (DD) but implicitly expects them to. - Let groups start and see if they do a DD - Don't let groups get too far into a function design without doing a DD - Keep track of how many groups did the DD with/without being told/reminded - Take a picture of each of the group's solutions		
Main Task 2 – Presentations		
Get two groups to present their solutions (they should not know this ahead of time). Encourage audience to point out mistakes or differences compared to their solution.		25-30 mins



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Solution Design – Version A

Week 4

Read through the following problem and provide a full solution. Be prepared to present your solution to the class.

Problem:

A student at UBC has their academic performance monitored after each term. Academic performance record for a student includes the student's name, their term grade as a percentage and the number of credits the student was registered in to a maximum of 18 credits.

For example, Annabella Simpson had an average percentage of 88 in her classes last term, which were a total of 15 credits.

A student that has a term average of less than 50% is considered failed. If a student has a failed but was enrolled in less than 12 credits, they are permitted to continue their studies, otherwise they must discontinue/withdraw from the university.

We need a function that will determine whether or not a student must discontinue/withdraw.



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Solution Design – Version B

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Read through the following problem and provide a full solution. Be prepared to present your solution to the class.

Problem:

A student's standing can either be: not currently registered at the university or they can be in Failed Standing, Academic Probation or Good Standing. A Good Standing student is one who passes all their courses and has a term average of at least 55% in those courses. Good Standing students are represented by their previous term average in percent.

A UBC student cannot take classes if:

- they have Failed Standing or are on Academic Probation and
- they receive less than 55% average on courses in their current term
- they are not registered at UBC
- if they are in Good Standing but receive less than 50% average across all courses in their current term and they took at least 12 credits in that term

We need a function to decide if a student is able to take classes or not. The function should take a student's standing and their % average on courses they took in their current term and the number of credits they took in their current term.