02101 Indledende Programmering Hjemmeopgave 1

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Hjemmeopgave 1.1: Katrine lavede størstedelen af denne opgave .

Hjemmeopgave 1.2: Martin lavede størstedelen af denne opgave. Katrine rettede i den og lavede de nødvendige ting for at kildekoden så struktureret ud.

Hjemmeopgave 1.3: Katrine lavede mest og havde ideer smidt i hovedet af Martin.

Hjemmeopgave 1.4: Ideer blev lavet af begge parter. Katrine satte det hele sammen.

**Problem 1.1**

The problem is to write a program that takes two positive integers as input and returns the integer exponent of the *largest* power of *b* that is less than or equal to *n*.

We solved the problem by asking for two integers by the operator and then running a method that takes those two integers as b and n. It then runs a for loop with *i* that starts at 0 and goes up to and not including n, and increases by one each run. It has a nested *if* sentence that will run in the loop and will break if *b>n*. Continue if and if neither of them hold, then it will say the exponent is *i-1* and break.

**Problem 1.2**

**Problem 1.3**

The problem is the write a program that simulates three vehicles moving on a 5x5 board, and if the vehicle should ever touch the same coordinate at the same turn it will terminate the program and write where the vehicles collide, when the vehicles collided and where.

**Problem 1.4**

The problem is writing a program for a basic vending machine. It will ask for input W, C, or J for either water, cola, or juice respectively. The program should then ask for amounts payed, only in 1, 2, 5, 10, or 20's. The program will then check how much has been inserted and either say thanks if the payed amount is equal to the price of the item. Say not enough was paid and return the money. And lastly if there was payed too much, it will say how much was payed and how much is returned.  
The program should be ended by saying TERMINATE and when it does it will say DONE.