Logic Programming Worksheet IV

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CSCI 320

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For this worksheet, we are going to write our first Prolog programs from scratch.

1. Implement mergesort … just kidding … though we will get to that :). The real problem is to write a program similar to gcd that tells us X mod Y is 0. Call your program factor.pl. I should be able to call your program with ?- factor(4,2) etc. NOTE: The gcd example I gave you in the notes is more complicated than this one, but you can use it as inspiration. The R is A mod B line can be interpreted intuitively as R gets the results of the arithmetic expression A mod B.

2. OK. Now mergesort… funny yet? … So this is a push yourself optional problem. I am the sort of person who enjoys a question more than an answer, so I throw this out there to challenge yourself. I'll provide the answer to this and more next week, but let's see if you can figure it out :) For this problem I want you to write a program to determine the greatest common factor (i.e., gcf(4,X) returns 2, gcf(5,X) returns 1, gcf(6,X) returns 3, etc. It requires you to train your mind to think a bit differently. You'll have to combine what you know of logic and recursion. I also created a helper function though I'm not sure that is necessary.

3. If you've managed to make it this far, try to implement a divide function: divide(N1,N2,Result). E.g., divide(4,2,X) returns X = 2.