

# CPSC 5031 Homework 3 (5 pts)

## Brute Force and Exhaustive Search

Let's write more code!

### Part 1: Substring Search

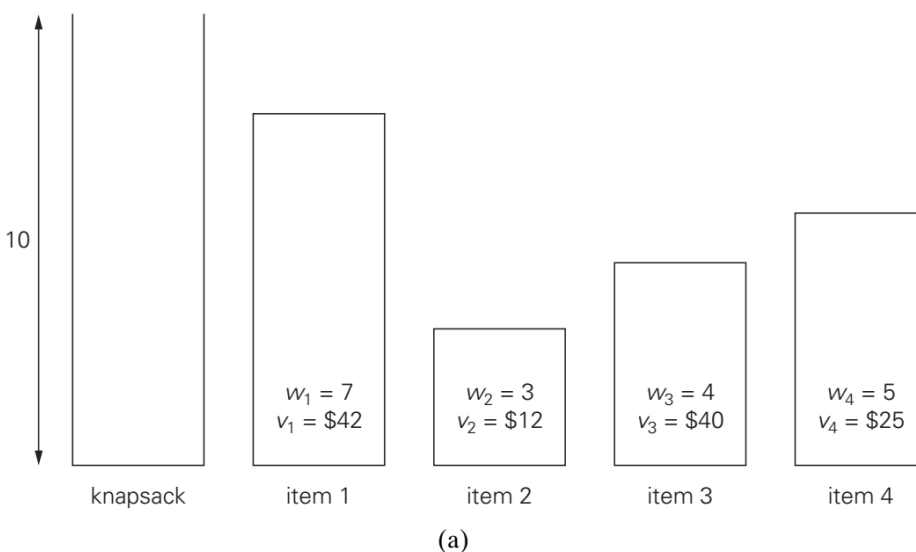
Write a function that searches a string  $S$  for the first occurrence of substring  $U$ . If the substring is found, return the character index where  $U$  starts. If the substring is not found, return -1.

Here are the test cases you should include:

S	U	result
Happy happy joy joy	happy	6
Where is the dog?	cat	-1
fun fun fun	fun	0
I love coding!	Me too!	-1

### Part 2: Knapsack Problem

In figure (a), you have a knapsack (bag) that can hold a total weight of 10. There are four items with given weights and dollar values. What is the maximum *value* you can put in the knapsack?



Write a program that finds the correct answer. You will find the answer and a table of other weights and values on page 118 of the text.