CS412 Lab session 5

Using record types

Writing a specification using the record type

A specification is required to keep track of orders received by a company. Each order consists of a customer name, the part being ordered, the quantity of that part required and a flag to say whether the order has been dispatched or not. For simplicity we will assume that a single order makes reference to one part type only. When an order is received, the system will allocate a new order identifier (although there must necessarily be some finite limit on the amount of orders the system can store). Write a machine to provide the following operations. The only restriction on the representation you use is that the orders should belong to a record type.

name	**ins**	**description**	**outs**
findorder	*oo*	if *oo* is an existing order id output the order it relates to	rr
isvalidorder	*oo*	determines if *oo* is an order id in use. Outputs a boolean	*bb*
cancelorder	*oo*	removes order *oo*, but only if not already dispatched	
dispatchorder	*oo*	change the status of order *oo* from not being dispatched to being dispatched	
addorder	cc, pp, nn	using the input values, an order is created and added using a fresh order id (which is also output)	*oo*
todispatch		output the set of order ids relating to orders which are still waiting to be dispatched	*oos*
numberneeded	*pp*	output the total number of part *pp* that are still waiting to be dispatched (ie: add them up!)	*nn*

The *todispatch* operation may complain that the output is not B0 but don't worry about that for now.