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COSC 405-001

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Assignment #4

Production Rules

**Check-order**

B0a If Step is check-order

There is Pepsi

Then Set flag to ‘yes’ that there is a Pepsi

B0b If Step is check-order

There is a bag a potato chips

There is no Pepsi

Then Ask if customer wants to add a Pepsi to the oder

B1 If Step is check-order

Then Print bagging message

Discontinue check-order step

Start the bar-large-items stem

Initialize the first bag

**Bag Large Items**

B2 If Step is bag-large-items

There is a bottle to be bagged

There is a bag without a bottle

There is a bag with weight < 8

Then Put the bottle in the the bag

B3 If Step is bag-large-items

There is a large item to be bagged that isn’t crushable

There is a bag with weight < 8

Then Put the item in the bag

B4 If Step is bag-large-items

There is a large item to be bagged

Then Start a new bag

B5 If Step is bag-large-items

Then Discontinue the bag-large-items step

Begin the bag-medium-items step

**Bag Medium Items**

B6 If Step is bag-medium-items

There is a non-crushable medium item to be bagged

There is a bag with weight < 10

Then Put the medium item in the bag

B7 If Step is bag-medium-items

There is medium item to be bagged

Then Start a new bag

B8 If Step is bag-medium-items

Then Discontinue the bag-medium-items step

Start the bag-small-items step

**Bag Small Items**

B9 If Step is bag-small-items

There is a small, non-crushable item

There is a bag with weight < 11

Then Put the small item in the bag

B10 If Step is bag-small-items

There is a small, non-crushable item

Then Start a new bag

B11 If Step is bag-small-items

Then Discontinue the bag-small-items step

Begin the bag-crushable step

**Bag Crushable Items**

B12 If Step is bag-crushable

There is a large crushable item

There is a bag with weight < 8

Then Bag the large item

B13 If Step is bag-crushable

There is a medium crushable item

There is a bag with weight < 10

Then Bag the medium crushable item

B14 If Step is bag-crushable

There is a small crushable item

There is a bag with weight < 11

Then Bag the small crushable item

B15 If Step is bag-crushable

Then Discontinue the bag-crushable step

Stop

Discussion of Results

As in the example, I began my program by checking the order for a Pepsi, and if one wasn’t found, asking the user if they wanted to add it to the order. From there, I bagged the items in descending order from largest to smallest, bagging the bottles first. I also made sure that the crushable items were bagged last.

With these rules, my program correctly bagged items, never letting the weight of a bag go above 12 pounds. One thing I found odd was that I couldn’t seem to get my system to go back and add items to bags that had room left once a new bag was started.

For instance, when executing order 2 with an added Pepsi, the system would start a third bag for the Pepsi bottle since bag 2 already had a bottle of milk in it. However, this left bag 2 with a spare 4 pounds of space. Once bag 3 was started for the bottle of Pepsi, the system completely ignored bag 2 when it started bagging medium and small items.

Overall, my Bagger system was successful in bagging items without exceeding capacity, while bagging crushable items last, and making sure there was only one bottle per bag.