

A Christmas inspired set of Typescript tasks. See how far you can go.

BagType

- Add an enum named BagType with the values PAPER and CANVAS.

PresentType

- Add an enum named PresentType with the values SOFT and HARD

Present

- Add a class named **Present**. Add the attributes: name (string), weight (number) and presentType (PresentType).
- Add a constructor where it is possible to set the the three attributes by sending in parameters in the constructor.
- Add a method to get the presentType.
- Add a method to get the weight.

Bag

- Add a class named **Bag**. Add the attributes: maxWeight (number), bagType (BagType) and an array of Presents (Class that will be added later).
- Add a constructor where it is possible to set the first two attributes by sending in parameters in the constructor.
- Add a method named addPresent that takes a parameter of the type Present and adds the object to the array of presents.

Santa

- Add a class named **Santa**. Add the attributes String name and int age.
- Add a constructor where it is possible to set the attributes by sending in the parameters in the constructor.

Sled

- Add a class named **Sled**. Add an attribute making it possible to hold a reference to an object of the type Santa.
- Add an attribute making it possible to attach multiple Bag--objects to the Sled.
- Add a constructor where it is possible to set the santa--attribute by sending in a parameter in the constructor.
- Add a method called addBag that takes in a Bag--object and adds it to the attribute holding multiple Bag--objects.
- Add a method called setSanta that takes in a Santa--object and sets the Santa--attribute.

RunSanta

- Add a file named **RunSanta.ts**
- Make a Santa--object with a name and age of your choice.

- Make a Sled-object, passing the santa object, as a reference.
- Make a Bag-object with the weight=10 and the BagType=CANVAS.
- Make a Present-object with the name of your choice, its weight=8 and the PresentType=HARD
- Make a Present-object with the name of your choice, its weight=3 and the PresentType=SOFT
- Add the two presents to the Bag-object by calling the method, addPresent in Bag.
- Add the Bag-object to the Sled-object by calling the method addBag in Sled.

Bag

- Add a method to the **Bag** class named totalWeight. The method should return the total weight of the presents inside of the Bag. It must be dynamic (vs. hardcoded) so it will work no matter how many presents are in the bag.
- Modify / add code to the method named addPresent, implementing the rule that the maxWeight limit of the bag is enforced. Adding a present that exceeds the bags limit should not be allowed. Make the method return true or false depending on if the package was successfully added or not.
- Modify / add code to the method named addPresent, implementing the rule that PresentType=SOFT is not allowed to be in BagType=PAPER. So even if the weight limit is not exceeded it should not be possible to add a present of the type SOFT to a Bag-object of the type PAPER. *(yes, this makes no logical sense to you, but for Santa it makes perfect sense, since Rudolf ran amok last year with this combo, so now Santa is too scared to try this again. So soft presents must go in CANVAS bags!)*

Sled

- Add a method named addPresentAndNewBagIfNeeded that takes a present object in as a parameter. This method should add a new Bag-object to the sled if there are no bags on the sled already that the present will fit into. The new bag (if needed) should have BagType=CANVAS and maxWeight=10.

Now lets print something out to test if we did all this correctly.

Present

- Add a method named print that prints out the name, weight and present type of the present object.

Bag

- Add a method named print that calls the print-method you wrote in the previous, on all the present objects in the bag object. You might also want to add a print out saying something like "This bag has a max weight of: 20 and is of type CANVAS", using the maxWeight and BagType of the bag object.

Sled

- Add another method name `print` that calls the method from the previous on all the bag objects in the sled object.

RunSanta

- Call the `print` method of the sled object. (Only the first present should be in the bag at this point because the `maxWeight` of the bag (10) is less than the combined weight of the presents (11)). Verify you get the expected result by compiling/transpiling the typescript into javascript and run the `RunSanta.js` file with `nodejs`.

- Change the bag object `maxWeight` to 25 and run it again. You should now have both presents in the bag.

- Change the bag object to be of `PAPER` type and run it again. You should now only have one present in the bag since a soft present should not be allowed in a `PAPER` type bag.

- Call the method `addPresentAndNewBagIfNeeded` to add the second present again prior to calling the `print` method and run. Now both presents should be there (but in two different bag objects).

Well done!