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## JavaScript Basics

1. Create an Object Person with Object literals
   1. The Object should have firstName, lastName and age properties
2. Create an Object MetadataParser using constructor functions
   1. The Object should have private properties \_version, \_channel, **\_keyField**
   2. Object should have get and set function for each property
   3. Add a method in the class getKeyFields, which takes an array of JSON objects (eg [{channel: ‘A’}, {channel: ‘B’}, {channel ‘C’}]) as input and returns an array of values of **\_keyField**, input array.
3. Write a function groupObjectsBy which takes as an input an array of JSON objects and returns a grouped object by a key. Eg
4. **groupObjectsBy([**

**{**

**"channel": "A",**

**"name": "shoe"**

**},**

**{**

**"channel": "A",**

**"name": "electronics"**

**},**

**{**

**"channel": "B",**

**"name": "apparel"**

**},**

**{**

**"channel": "C",**

**"name": "electronics"**

**}**

**], ‘channel’)**

Will return  
{

"A":[{"channel":"A","name":"shoe"},{"channel":"A","name":"electronics"}],

"B":[{"channel":"B","name":"apparel"}],

"C":[{"channel":"C","name":"electronics"}]

}

1. Implement inheritance. Define a constructor function SortArray which
   1. Has a property originalArray
   2. Has get function to getSortedArray
   3. Has a private function to sort the array.
   4. Takes as an input to construct an array of numbers
   5. Define another constructor function (SortObjectArray) which extends SortArray, and is used to sort array of JSON object

## NodeJS

1. Find a package to convert an XML to JSON. (see <https://www.npmjs.com/package/xml-parser> for example)
   1. Write a wrapper over the package. Implement an XmlParser helper Object/function which exposes a methods to parse an XML and takes as an input options
   2. Implement a method which takes in options file path and reads an XML file from filesystem and returns it’s JSON. The method should have error handling for non-existent file paths.
2. Use handlebars package
   1. Explore handlebars as provided in the documentation. Play around with it here - <http://tryhandlebarsjs.com/>
   2. Create handlebar template to generate a template as given under
      1. [Handlebar feeder Data](#_s3o9g17ro71j) : data fed to compile
      2. [Expected XML Template](#_goy2enc6dqs4) : output
3. request package (pre-requisite basic overview on request module and eventEmitter)
   1. Use request package to download google.com homepage and save it into a file using fs package.
   2. Use request package and event it emits to stream a file from web as a file in filesystem.
4. Async
   1. For following list of images, download the images parallel and create compressed file and save in a folder file system. Before writing image in the FS print the index of the image in console
      1. <http://sousmonarbre.com/qphj/bd963843d2239ed78aa6f7b0a36b537d/qdp/shapely-table-mat-design-office-bay-decoration-mes-at-work-decorating-ideas-office-decoration-mes-design-ideas-cream-wall-paint-decoration-messroom-wooden-laminate-ing-tosca-color__office-decorating-ideas.jpg>
      2. <https://doodleart.redbull.com/assets/managed/entries/processed/sm/367010617181759_36211000.jpg>
      3. <https://www.justcolor.net/wp-content/uploads/sites/1/nggallery/doodle-art-doodling/coloring-page-adults-doodle-art-rachel.jpg>
      4. <https://i.pinimg.com/originals/e5/55/a3/e555a39ca5457a079a9bcce59f61f8d5.jpg>
      5. <http://canhotopazelite.info/wp-content/uploads/2018/08/office-bay-decoration-themes-with-office-bay-decoration-themes-elegant-yet-fun-office-bay-decoration-14.jpg>
      6. <https://i.pinimg.com/originals/ef/4c/91/ef4c91fb73e61e19211a0589187ccaa6.jpg>
      7. <https://static.vecteezy.com/system/resources/previews/000/107/464/non_2x/huge-doodle-vector-pack.jpg>
      8. <https://i.ytimg.com/vi/O5u1apUkYV0/maxresdefault.jpg>
      9. <https://media.glassdoor.com/l/e9/c1/7a/84/independence-day-celebration.jpg>
   2. For the list of images above, make sure to not save more than 5 image in a folder, if there are more than 5 images create a new folder and saved images
5. **Miscellaneous** - check packages which shorten a url. (eg. bitly, rebrandly). Write a UrlShortner, which takes as input an array/file of URLs and saves a CSV of original and new shortened url. All the above links can be used, for the exercise.

## Handlebars Input and Output data

### Handlebar feeder Data

[

{

"baseId": "1",

"feature": {

"1": "parent",

"2": "first entry"

},

"contentType": {

"1": {

"value": "pure"

},

"2": {

"value": "mix"

}

},

"isActive": true,

"childProducts": [

{

"baseId": "1-1",

"isActive": true

},

{

"baseId": "1-2",

"isActive": false

},

{

"baseId": "1-3",

"isActive": true

},

{

"baseId": "1-4",

"isActive": true,

"feature": {

"1": "parent",

"2": "first entry"

},

"searchTerms": {

"0": "glue",

"1": "adhesive",

"2": "stick"

}

}

]

},

{

"baseId": "10",

"isActive": true,

"searchTerms": {

"0": "glue",

"1": "adhesive",

"2": "stick"

},

"childProducts": [

{

"baseId": "10-1",

"isActive": true,

"searchTerms": {

"0": "glue"

}

},

{

"baseId": "10-2",

"isActive": false

},

{

"baseId": "10-3",

"isActive": true

},

{

"baseId": "10-4",

"isActive": true

}

]

}

]

### Expected XML Template

<products>

<product>

<baseId></baseId>

<isActive></isActive>

<contentType>

<contentTypeValue></contentTypeValue>

</contentType>

<features>

<feature></feature>

</features>

<searchTerms>

<searchTermValue></searchTermValue>

</searchTerms>

<childProducts>

<childProduct>

<baseId></baseId>

<isActive></isActive>

<features>

<feature></feature>

</features>

<searchTerms>

<searchTermValue></searchTermValue>

</searchTerms>

</childProduct>

<childProduct>

<baseId></baseId>

<isActive></isActive>

<features>

<feature></feature>

</features>

<searchTerms>

<searchTermValue></searchTermValue>

</searchTerms>

</childProduct>

<childProduct>

<baseId></baseId>

<isActive></isActive>

<features>

<feature></feature>

</features>

<searchTerms>

<searchTermValue></searchTermValue>

</searchTerms>

</childProduct>

</childProducts>

</product>

</products>