Group Members: Caroline-Marie Jacobsen, Kamilla Dalgaard, Viktor Sybrandt, Victor Hjuler

Week 8 assignment is, inevitably, about Regular Expressions and OpenRefine

Upload a text file or a PDF with your answers/solutions to the problems below. Beware of making the submission legible and understandable to another reader; for example, consider using the "Save regex" functionality in regex101.com, which allows you to create a link out of your solution and share the link for easy use by your colleagues. Remember that you can elaborate solutions in groups, but need to submit **individually.**

1. **What regular expressions do you use to extract all the dates in this blurb: http://bit.ly/regexexercise2 and to put them into the following format YYYY-MM-DD ?**

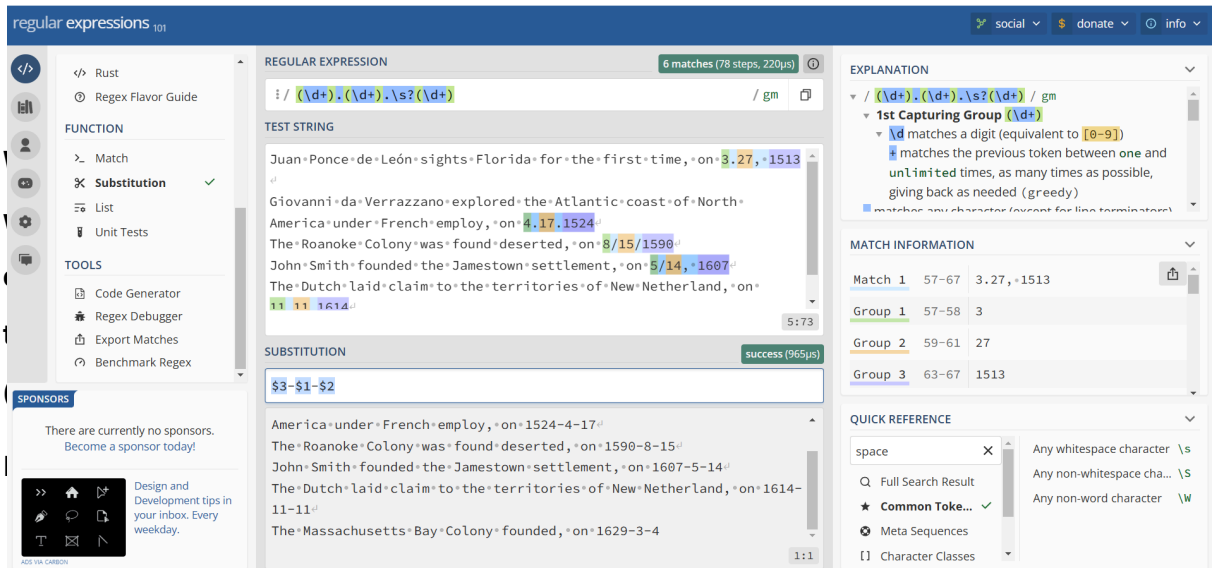
   Answer: https://regex101.com/r/FewRxZ/1

   We start by writing the regular expression (\d+).(\d+).\s?(\d+). Each parenthesis refers to one part of the date, which we want to change.

   \d matches any digit between 0-9 and the + ensures that the digit can be repeated as many times as possible.

   The . matches any character and the \s matches any blank space. Combined with the question mark after \s ensures that this element can be repeated as many times as needed.

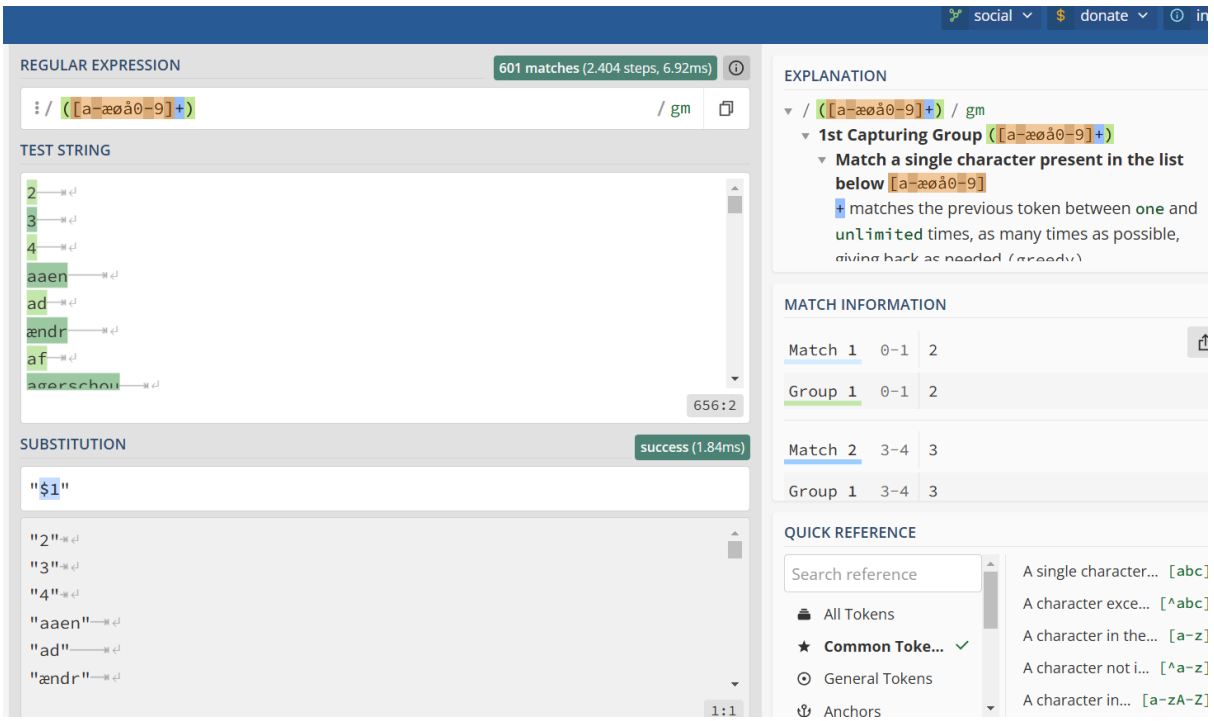
   By writing $ it refers to any part of the regular expression. $1 refers to the first parentheses, $2 to the next and so on. We would like to change the order of the dates to YYYY-MM-DD instead of the current MM-DD-YYYY. In order to do so, we will write the following: $3-$1-$2.



2. **Write a regular expression to convert the stopwordlist (list of most frequent Danish words) from Voyant in http://bit.ly/regexexercise3 into a neat stopword list for R (which comprises "words" separated by commas, such as http://bit.ly/regexexercise4). Then take the stopwordlist from R http://bit.ly/regexexercise4 and convert it into a Voyant list (words on separate line without interpunction)**

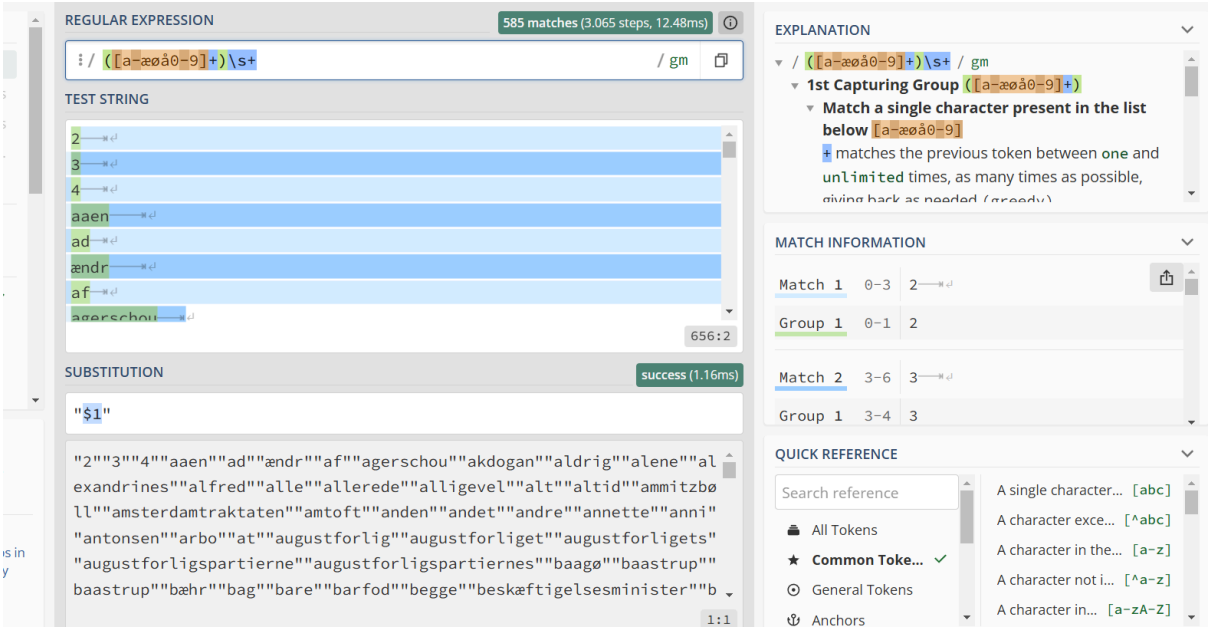
   From Voyant list to stop list for R: https://regex101.com/r/traDyL/1

   When making the list, we used the regular expression ([a-æøå0-9]+). This expression captures one group: it will match a single character present in the list. + matches the previous token between one and unlimited times, as many times as possible, giving back as needed. a-æ matches a single character in the range between a and æ. øå matches a single character in the list øå. 0-9 matches a single character in the range between 0 and 9. In the substitution we have written "$1" which matches the end of the string. It "refers" to the parenthesis in the top text. we wanted "" on both sides of the words, which is why it around the $1.



   Working with the same expression, we then have to separate the lines without interpunction. We used ([a-æøå0-9]+)\s+. A \s+ has been added to the expression, and matches any whitespace character. + matches the previous token between one and

unlimited times, as many times as possible, giving back as needed. The substitution will also change and now makes it one text.



From stop list for R to Yoyant list: https://regex101.com/r/3C4QXD/1

When making the expression, we used (“)([a-zæøå0-9éü.´]+)(“,). the (“) captures group one and “ matches every “ character. The next group is ([a-zæøå0-9éü.´]+) and + matches the previous token between one and unlimited times, as many times as possible, giving back as needed. a-z matches a single character between a and z. æøå matches a single character in the list æøå, and 0-9 matches a single character in the range 0-9. éü.´ matches a single character in the list éü.´. the last group (“,) matches the characters “,. In substitution we used $2 to refer to group 2 and \n for the new line.

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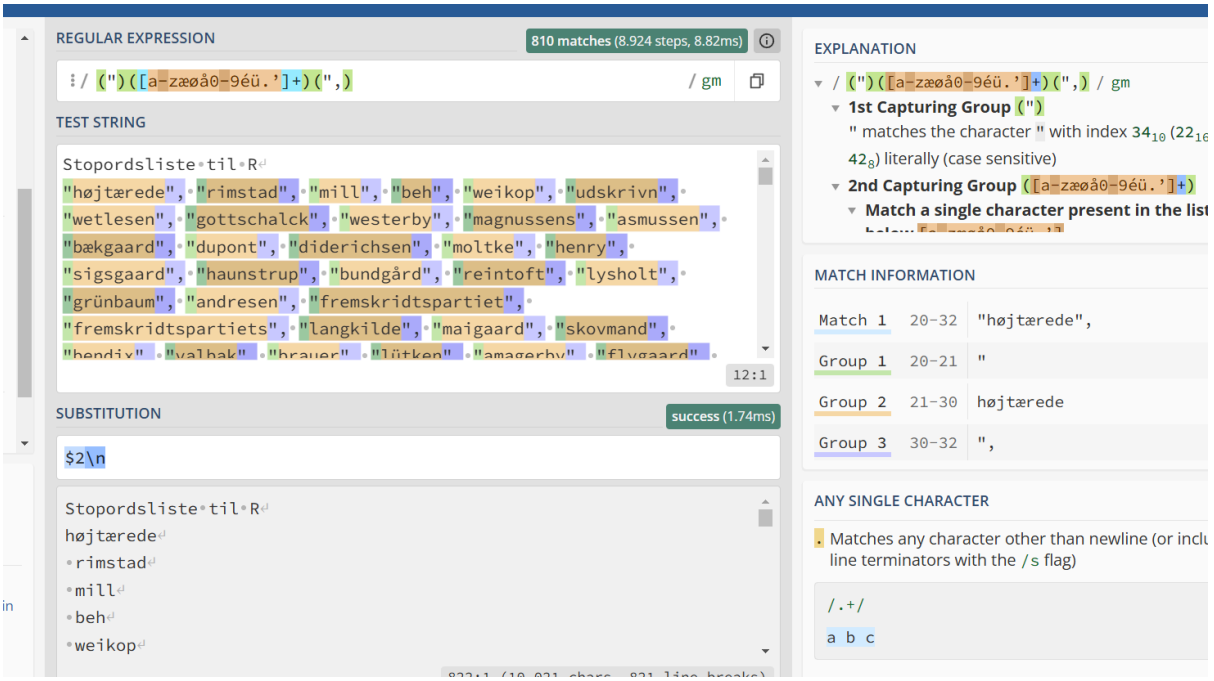

3. **Does OpenRefine alter the raw data during sorting and filtering? Fix the interviews dataset in OpenRefine enough to answer this question: "Which two months are reported as the most water-deprived/dryest by the interviewed farmer households?"**

   Openrefine doesn't alter the raw data by changing, but makes it more visually tidy, and can make it easier to read. First we upload the raw data to openrefine. To answer the question, we sorted/declustered/filtered the data. When making it more tidy, we took the Facets and removed the brackets, "", ', and the bigger spaces. To specifically find the months, we used the expression Value.split(";") to find the month with the most matches. You can also use a facet filter to check, but this way is more visually tidy. We found that the two most water-deprived/dyrest months are October with 80 matches and September with 70 matches.

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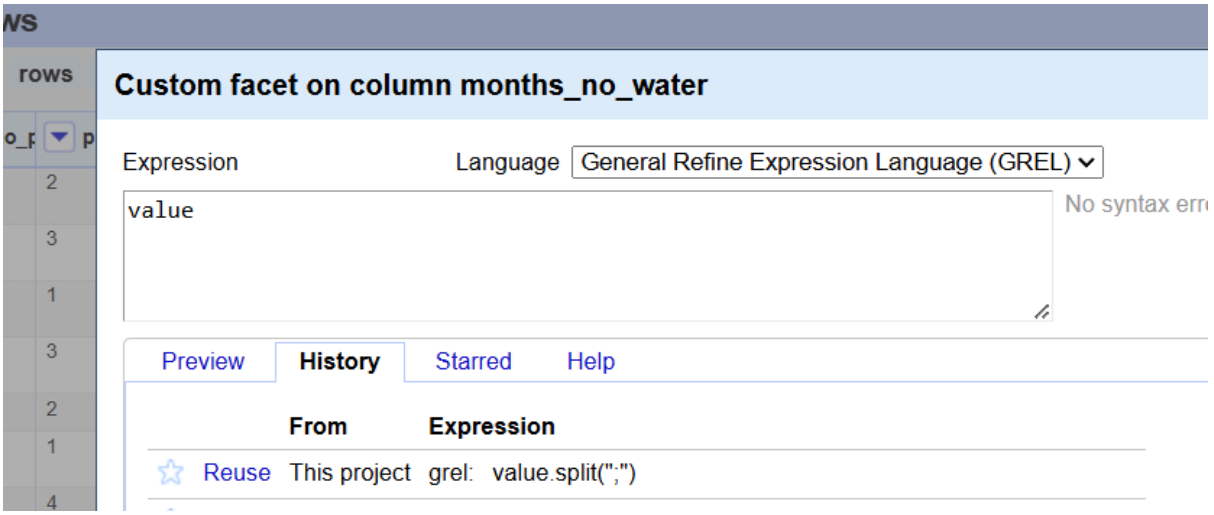
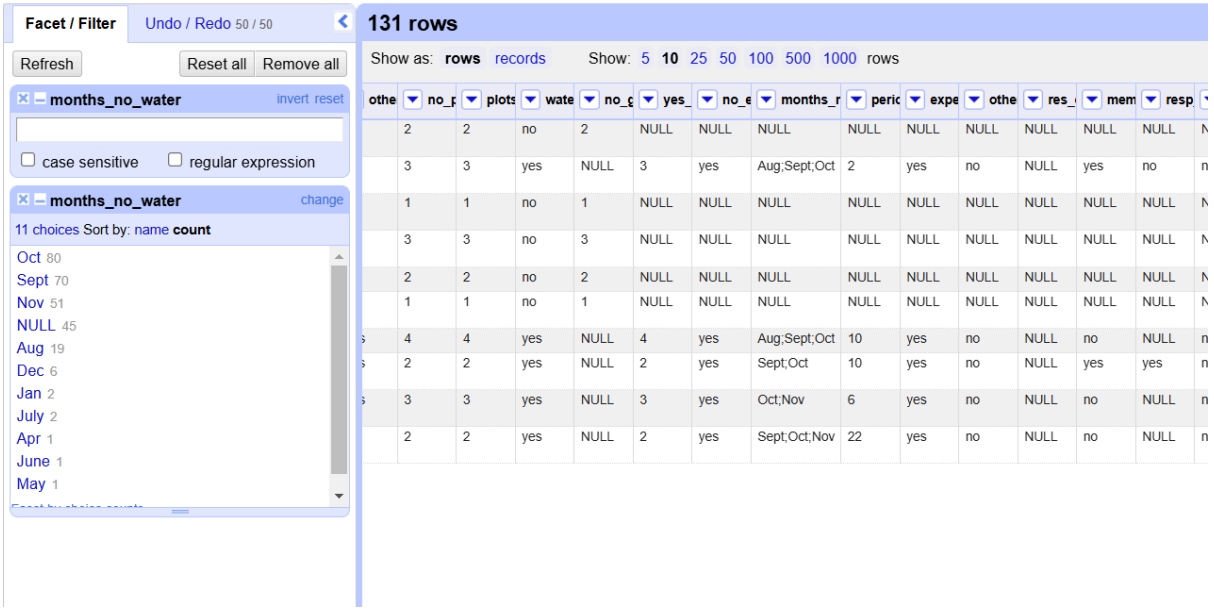
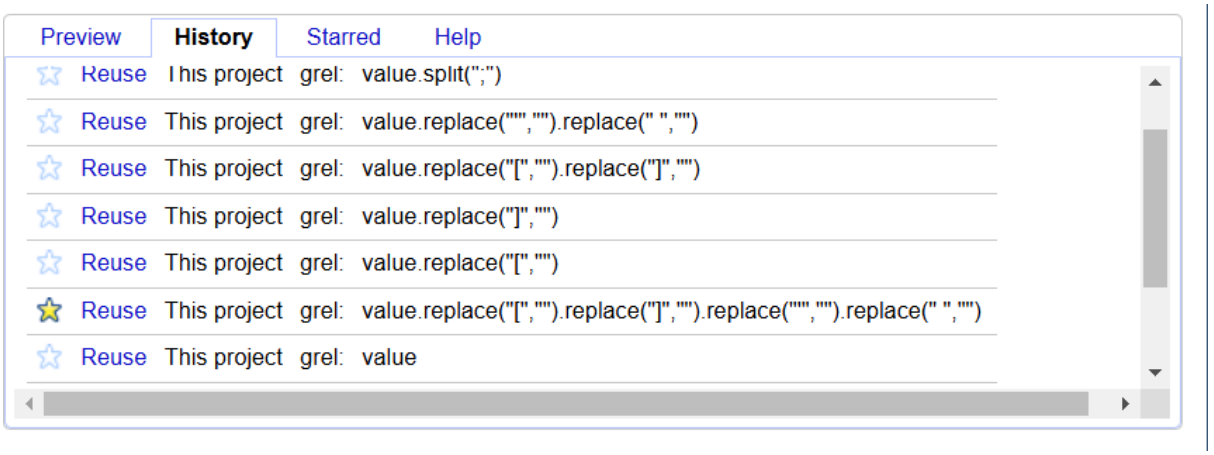




The expressions to remove brackets etc.



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4. **Real-Data Challenge: What are the 10 most frequent occupations "erhverv" among unmarried men or women of 20-30 years in 1801 Aarhus census dataset? (hint: first select either men or women to shrink the dataset to a manageable size, then filter by age, and then use merging to cut the erhvervvariation ruthlessly.)**

   Women unmarried - 20-30 years 10 most frequent occupations:

   1. Tjenestepige
   2. Væverske
   3. Huusholderske
   4. Huusjomfru
   5. Inderste
   6. Kokkepige
   7. Lever af sine midler
   8. Tjener faderen
   9. Væverpige
   10. Bryggerpige

   Men unmarried 20-30 years 10 most frequent occupations:

   1. Soldat
   2. landsoldat
   3. tjenestekarl
   4. væver
   5. gårdkarl
   6. land cerut
   7. Bonde og Gaardbeboer
   8. Land-rytter
   9. Lærerdreng
   10. Nationalrytter

To get these answers we had to go through a variety of steps, which is shown below.

Note: this explanation only shows the results for women, though it is representative for both cases.

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step 1, upload data, text facet: After we uploaded the data we chose to make the “occupation” column into a text facet, to get a raw overview of the data.

as we can see here, the data is messy and disorganised.

step 2, cluster and filtering: To clean up the data and, we had to get rid of all the possible data corruption, such as a word thats spelled the same, but one has a lowercase letter and the other has an uppercase letter. to do this we clustered the data to make it even more clean.

as we only needed to get the most popular job/occupation for unmarried women, we filtered the data so as to only show the data we needed

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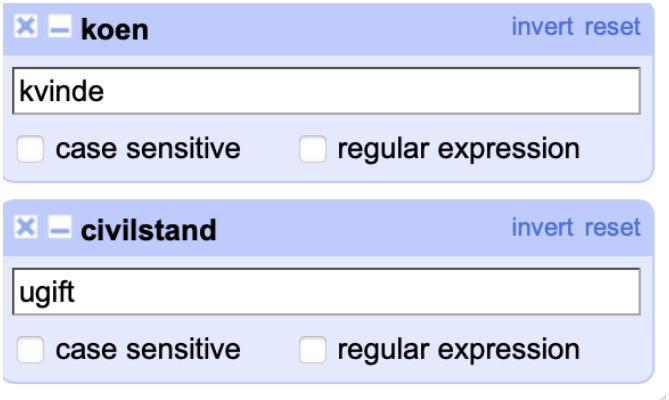
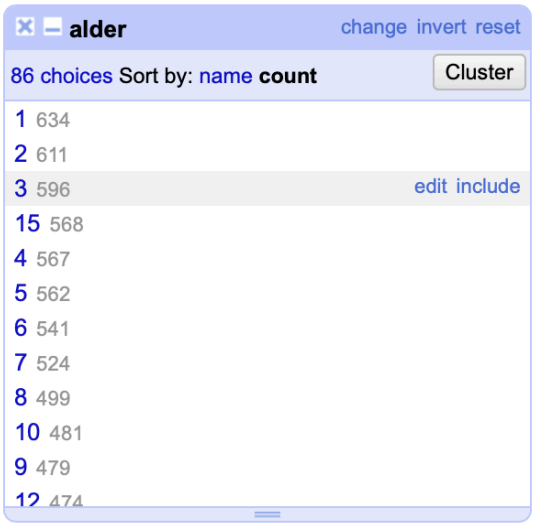


Step 3, age filtering: Then we had to only get data from unmarried women who were between the ages of 20-30, which proved a little tricky.
At first we decided to make a numeric facet of the “age” column, and sort it into “count”(picture 1).
Since the ages ranges from 1-86 years, we had to only include the ages from 20-30 and exclude all other data from that column (picture 2).

1. 

2.