**REGEX QUANTIFIER INTRODUCTION**

Quantifiers utilize the following metacharacters: **?\*+{,}**

There may be occasions where you want to specify **how many times a pattern occurs in a string**. Quantifiers allow you to do just that - just in ways that you might not expect. There are **three basic** categories of quantifiers: ***greedy, reluctant, and possessive***.

**There are three possible ways to use those metacharacters as quantifiers:**

expression{3} = means the expression must occur EXACTLY three times in the search string.  
expression{3,7} = means the expression must occur BETWEEN three to seven times (inclusive) in the search string.  
expression{4,} = means the expression must occur AT LEAST four times in the search string.

**Pattern Matcher .find() result**

//we don’t have any CAPTURING GROUPS around ‘lime’, so it gonna count ‘e’ atleast one time : TRUE

**lime{1} "5 limes for $1" true**

//we don’t have any CAPTURING GROUPS around ‘round’, so it gonna count ‘d’ exactly 2 time, at contagious place : FALSE

**round{2} "The wheels on the bus go round and round"** false

//we don’t have any CAPTURING GROUPS around ‘round’, so it gonna count ‘d’ exactly 2 time, at contagious place : TRUE

**round{2} "The wheels on the bus go roundd and round" true**

//we have any CAPTURING GROUPS around ‘round’, so it gonna count ‘round’ exactly 2 time, at contagious place : FALSE

**(round){2} "The wheels on the bus go round and round" false**

//we have any CAPTURING GROUPS around ‘round’, so it gonna count ‘round’ exactly 2 time, at contagious place : true

**(round){2} "The wheels on the bus go roundround" true**

|  |
| --- |
| **package** com.Soham;  **import** java.util.regex.\*;  **public class** Main {   **public static void** main(String[] args) {  *displayFind*(**"lime{1}"**,**"5 limes for $1"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"round{2}"**,**"The wheels on the bus go round and round"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"round{2}"**,**"The wheels on the bus go roundd and round"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"round{2}"**,**"The wheels on the bus go roundd and roundd"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"(round){2}"**,**"The wheels on the bus go round and round"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"(round){2}"**,**"The wheels on the bus go roundround"**);  System.***out***.println(**"-----------------------------------------------------"**);   *//we need to find 'a' or 'e', 4 to 7 times in the string  displayFind*(**"[ae]{4,7}"**,**"Hello everybody, I\'m Dan"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"[ae]{4,7}"**,**"eeeeeee"**);  System.***out***.println(**"-----------------------------------------------------"**);   *//searches either 4 to 7 times of 'a' & 'e', or any combination  displayFind*(**"[ae]{4,7}"**,**"eaee"**);  System.***out***.println(**"-----------------------------------------------------"**);   *//'a' & 'e' at least 4 times, in [character class]  displayFind*(**"[ae]{4,}"**,**"oh craaaaaaap!"**);  System.***out***.println(**"-----------------------------------------------------"**);   **int** i = 0;  *//20{5} - 2 followed by 5 0s* **while**(!Pattern.*compile*(**"20{5}"**).matcher(**""**+ ++i).find()) { }  System.***out***.println(i + **" leagues under the sea.\n"**);  System.***out***.println(**"-----------------------------------------------------"**);   *//3 digits before, followed by a dash, and 4 digits(d) afret the dash  displayFind*(**"\\d{3}-\\d{4}"**,**"867-5309"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"\\d{3}-\\d{4}"**,**"5309-867"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"\\d{3}-\\d{4}"**,**"1867-5309"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"[ae]"**,**"Bear"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"[^ae]"**,**"Bear"**);  System.***out***.println(**"-----------------------------------------------------"**);    *//for the case of presidence ^ comes at first  displayFind*(**"^\\d{3}-\\d{4}"**,**"1867-5309"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"^\\d{3}-\\d{4}"**,**"867-5309"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"\\d{3}-\\d{4}"**,**"867-53099"**);  System.***out***.println(**"-----------------------------------------------------"**);  //$ - ENSURES THAT THE STRING MUST ENDUP WITH 4 DIGITS  *displayFind*(**"\\d{3}-\\d{4}$"**,**"867-53099"**);  System.***out***.println(**"-----------------------------------------------------"**);   *displayFind*(**"^\\d{3}-\\d{4}$"**,**"867-5309"**);  }  **public static void** displayFind(String regex, String find\_me){  **boolean** getmatch = **false**; *// Pattern p = Pattern.compile(regex); // Matcher m = p.matcher(find\_me);* Matcher m = Pattern.*compile*(regex).matcher(find\_me);   **while** (m.find()){  System.***out***.println(**"Matcher found "** + m.group() + **" at index "** + m.start() + **" for regex "** + regex + **" with "** + find\_me);  getmatch = **true**;  }   **if** (!getmatch){  System.***out***.printf(**"no match for "** + regex + **" on "** + find\_me);  }  System.***out***.println();  } } |
| Matcher found lime at index 2 for regex lime{1} with 5 limes for $1  -----------------------------------------------------  no match for round{2} on The wheels on the bus go round and round  -----------------------------------------------------  Matcher found roundd at index 25 for regex round{2} with The wheels on the bus go roundd and round  -----------------------------------------------------  Matcher found roundd at index 25 for regex round{2} with The wheels on the bus go roundd and roundd  Matcher found roundd at index 36 for regex round{2} with The wheels on the bus go roundd and roundd  -----------------------------------------------------  no match for (round){2} on The wheels on the bus go round and round  -----------------------------------------------------  Matcher found roundround at index 25 for regex (round){2} with The wheels on the bus go roundround  -----------------------------------------------------  no match for [ae]{4,7} on Hello everybody, I'm Dan  -----------------------------------------------------  Matcher found eeeeeee at index 0 for regex [ae]{4,7} with eeeeeee  -----------------------------------------------------  Matcher found eaee at index 0 for regex [ae]{4,7} with eaee  -----------------------------------------------------  Matcher found aaaaaaa at index 5 for regex [ae]{4,} with oh craaaaaaap!  -----------------------------------------------------  200000 leagues under the sea.  -----------------------------------------------------  Matcher found 867-5309 at index 0 for regex \d{3}-\d{4} with 867-5309  -----------------------------------------------------  no match for \d{3}-\d{4} on 5309-867  -----------------------------------------------------  Matcher found 867-5309 at index 1 for regex \d{3}-\d{4} with 1867-5309  -----------------------------------------------------  Matcher found e at index 1 for regex [ae] with Bear  Matcher found a at index 2 for regex [ae] with Bear  -----------------------------------------------------  Matcher found B at index 0 for regex [^ae] with Bear  Matcher found r at index 3 for regex [^ae] with Bear  -----------------------------------------------------  no match for ^\d{3}-\d{4} on 1867-5309  -----------------------------------------------------  Matcher found 867-5309 at index 0 for regex ^\d{3}-\d{4} with 867-5309  -----------------------------------------------------  Matcher found 867-5309 at index 0 for regex \d{3}-\d{4} with 867-53099  -----------------------------------------------------  no match for \d{3}-\d{4}$ on 867-53099  -----------------------------------------------------  Matcher found 867-5309 at index 0 for regex ^\d{3}-\d{4}$ with 867-5309 |