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Projeto para a cadeira de
MPEI feito por:
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Módulos

-Counting Bloom Filter
-Contador Estocástico
-Shingles
-Minhash
-HashFunction
-MinHashLSH

Counting Bloom Filter

```java
 *      Gets the count of the element in Counting Bloom Filter
 *
 * Argument:
 *      -> String elm: element to be counted
 *
 * Return:
 *      -> int: count of the element
 */
public int count(String elm) {
    int pos;
    int min = Integer.MAX_VALUE;
    for (int i = 0; i < k; i++) {
        pos = myHash(elm,i) % (CBloomFilter.length);
        if (CBloomFilter[pos] < min)
            min = CBloomFilter[pos];
    }
    return min;
}


/*
 * Purpose:
 *      Deletes a element of the Counting Bloom Filter if element truly belongs to it
 *
 * Argument:
 *      -> String elm: element to be deleted
 */
public void delete(String elm) {
    int pos;
    int[] positions = new int[k];
    boolean r;
    // check if element belongs to the array
    r = check(elm);

    // if element belongs delete element
    if (r) {
        /*
         * gets to array all the positions of element
         */
        for (int i = 0; i < this.k; i++) {
            pos = myHash(elm, i);
            positions[i] = pos;
        }

        /*
         * deletes word in every position, i.e, decrements one in every position
         */
        for (int i = 0; i < k; i++) {
            CBloomFilter[positions[k]]--;
        }
    }
}
```

Counting Bloom Filter – Test

```
propriedade -> 1  ...... : 2420
restante    -> 2
afivelado   -> 1
--Desculpa-me  -> 1
inteiro ->  1
inteira ->  6
Chamava ->  1
sarjou-lhe  -> 1
proferira   -> 1
sabel-os    -> 1
infortunios -> 1
derive  ->  1
instancia   -> 1
vendido ->  1
dinheiro    -> 19
despresas   -> 1
Mathias ->  9
virtualmente   -> 1
árca    ->  1
navio   ->  1
Gutenberg-tm   -> 55
estropiado  -> 1
Deteve-se   -> 2
fôra    ->  13
apparecimento  -> 1
espionagem -> 3
retroceder  -> 1
sorrindo--Digo  -> 1
envergonhado   -> 1
=====================================================
Most frequent word: de  (2420 times).
=====================================================
```

Stochastic Counter

```
 90
 91
 92    /*********************************************************************
 93     *                          Public Methods                          *
 94     *********************************************************************/
 95    /*
 96     * Purpose:
 97     *     Attempts to increment a counter (equals to trying to count an event)
 98     *
 99     * Return:
100     *     -> int:
101     */
102    public int incrementCounter() {
103        this.numberOfEvents++;
104        if (Math.random() < this.countingProb) {
105            this.counter++;
106        }
107        return this.counter;
108    }
109
110    /*
111     * Purpose:
112     *     Resets the counter
113     */
114    public void resetCounter() {
115        this.counter = 0;
116        this.numberOfEvents = 0;
117    }
118
119    /*
120     * Purpose:
```

Stochastic Counter - Test

```
65    //Theoretically, the mean of cases considered should be #ofCases * countingProbability. In our case, that would be 100000 * 1/2 = 50 000
66    mean = ourCounter.getMeanOfEvents();
67    tMean = 0 * (1 - countingProb) + 1 * countingProb * events;
68    System.out.printf("Theoretical Mean of cases counted = %f\n", tMean); //Theoretical Value
69    System.out.printf("Average ammount of cases counted = %f\n\n", mean); //Checks out !!
70
71
72    //VARIANCE OF CASES CONSIDERED
73    //The formula for the Variance of Cases Counted is the same as the normal formula for the Variance of a Random Variable. In truth the counter itself could be
74    //considered a variable that takes the value 1 if a case is counted or 0 if its not !
75
76    //So in our case, Var(X) = E[X^2] - E^2[X]
77    // E[X^2] = 1/2 * 0 + 1/2 * 1^2 = 1/2 ; E^2[X] = 1/4 ;Var(X) = 1/2-1/4 = 1/2 ; But we want the Variance of cases counted out of K which we can get with: k * Var(X),
78    //and since we have 100 000 cases, we get
79    //Var(X) = Var(X1) + Var(X2) + ... + Var(X100000) = 100000/4 = 25 000
80    var = ourCounter.getVariance();
81    tVar = ((0 * (1 - countingProb) + Math.pow(1, 2) * countingProb) - Math.pow(tMean / events, 2)) * events;
82    System.out.printf("Theoretical Variance of cases counted = %f\n", tVar); //Theoretical Value
83    System.out.printf("Variance of cases counted = %f\n\n", var); //Checks out !!
84
85
86    //PROBABILITY OF N CASES BEING COUNTED
87    //The formula for the probability of n cases being considered out of k, with a counting probability of p is:
88    // C(k,n)*p^n * (1-p)^(k-n)
89    //In our case, the probability of counting just, for example, 1 case should be: 50!/1!*(50-1)! * 1/64 ^5000 * 63/64^(50-1)
90    double prob = ourCounter.probSum(1);
91    System.out.printf("Prob of counting only 1 case out of 50 = %f\n\n", prob); //Checks out !!
92
93    }
94  }
95
```

```
<terminated> StochasticCounterTest [Java Application] C:\Program Files\Java\jre1.8.0_181\bin\javaw.exe (11 Dec 2018, 22:19:52)

Theoretical Mean of cases counted = 1.562500
Average ammount of cases counted = 1.562500

Theoretical Variance of cases counted = 1.513672
Variance of cases counted = 1.513672

Prob of counting only 1 case out of 50 = 0.329757
```

Shingles

```
173    /*
174     * Purpose:
175     *      Convert the shingles of strings to ints.
176     *      Instead of a map with this structure {String: ArrayList<String>}, we will have
177     *      a structure like this:  {String: ArrayList<Integer>}
178     *
179     * Return:
180     *      -> HashMap<String,ArrayList<Integer>>: hashMap with this structure: {String: ArrayList<Integer>}
181     */
182    public HashMap<String, ArrayList<Integer>> convertShingles() {
183        HashMap<String, ArrayList<Integer>> convertedShingles = new HashMap<String, ArrayList<Integer>>();
184
185        int keysLength = shingles.keySet().size();
186        int valuesLength;
187        String[] keys = shingles.keySet().toArray(new String[shingles.keySet().size()]);
188
189        Integer[] hK;
190
191        //For each file in the shingles
192        for (int n = 0; n < keysLength; n++) {
193            valuesLength = shingles.get(keys[n]).size();
194            hK = new Integer[valuesLength];
195            //For each shingle of the file
196            for (int i = 0; i < valuesLength; i++) {
197                hK[i] = 0;
198                //Get a hash for each char in the shingle and add it to the total hash of the shingle
199                for (int k = 0; k < shingles.get(keys[n]).get(i).length(); k++) {
200                    hK[i] += ourHashFunction.getHash((int) shingles.get(keys[n]).get(i).charAt(k), 1);
201                }
202
203                //Make sure that we don't get a Hash value that's too big
204                hK[i] = hK[i] % ourHashFunction.getPrime();
205            }
206            //hK now has an array in which each of the elements corresponds to each of the shingles of the file "n" hashed into an integer
207            convertedShingles.put(keys[n], new ArrayList<>(Arrays.asList(hK)));
208        }
209        return convertedShingles;
210    }
211
```

MinHash

```
 93  /*
 94   * Purpose:
 95   *      Creates a minHash
 96   *
 97   * Argument:
 98   *      -> HashMap<String,ArrayList<Integer>> dataSet: HashMap with Strings as keys
 99   *         and the value of each key is a ArrayList of Integers
100   */
101  private void createMinHash(HashMap<String, ArrayList<Integer>> dataSet) {
102
103      int keysLength = dataSet.keySet().size();
104      int valuesLength;
105      String[] keys = dataSet.keySet().toArray(new String[dataSet.keySet().size()]);
106
107      int[] hK;
108
109      //Initialise minHash
110      this.minHash = new int[keysLength][(int) this.totalHashes];
111
112      //For each key in the dataset
113      for (int n = 0; n < keysLength; n++) {
114          //Generate totalHashes Hashes
115          for (int j = 0; j < totalHashes; j++) {
116              valuesLength = dataSet.get(keys[n]).size();
117              hK = new int[valuesLength];
118
119              //For each value corresponding to the key in the dataset generate a hash
120              for (int i = 0; i < valuesLength; i++) {
121                  hK[i] = ourHashFunction.getHash(dataSet.get(keys[n]).get(i), j);
122              }
123
124              //Use the minimum hash generated
125              this.minHash[n][j] = minimum(hK);
126
127              //Note: Normally we would have the minHash's rows be the hashes generated by the hash function and the columns be the dataSet keys
128              //however, due to make the process of working with the minHash in java we had to put the hashes in the columns and values in the rows
129          }
130      }
131  }
```

HashFunction

```
120     *      -> int[]: array of ints with random values of B
121     */
122○    public int[] getRandValsB() {
123         return randValsB;
124     }
125
126
127○    /******************************************************************************
128     *                              Public Methods                               *
129     ******************************************************************************/
130
131○    /*
132     * Purpose:
133     *      Calculates Hash value of an integer value
134     *
135     * Arguments:
136     *      -> int val: integer to be hashed
137     *      -> int i: number of hash function to be used (it will select the correct values of arrays
138     *                randValsA and randValsB
139     *
140     * Return:
141     *      int: hash code (integer) of the given integer
142     */
143○    public int getHash(int val, int i) {
144         int hK = randValsA[i] * val + randValsB[i];
145         hK = hK % this.prime;
146
147         return hK;
148     }
149 }
```

MinHash – Similarities

```
43
44     /*******************************************************************************
45      *                              Private Methods                               *
46      *******************************************************************************/
47
48     /*
49      * Purpose:
50      *      Returns total amount of intersections between two 1D arrays
51      *
52      * Arguments:
53      *      -> int[} a: array of integers a to be evaluated
54      *      -> int[} b: array of integers b to be evaluated
55      *
56      * Return:
57      *      -> int: value of the intersection, i.e, number of equal "rows"
58      */
59     int intersections(int[] a, int[] b) {
60         int sum = 0;
61         //Check if entries at index I of array A and array B are the same
62         for (int i = 0; i < a.length; i++) {
63             if (a[i] == b[i]) {
64                 sum++;
65             }
66         }
67
68         return sum;
69     }
70
71     /*
72      * Purpose:
73      *      Gets minimum value from an array of Integers
74      *
75      * Argument:
76      *      -> int[} hK: array of integers to get minimum
77      *
```

MinHash - Test
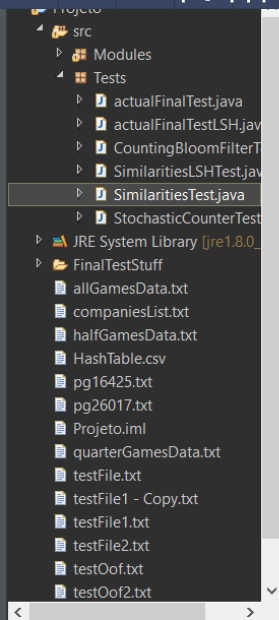

```java
                    }
                    //System.out.printf("User - %s ; Movie - %s\n",fileScanner.next(),fileScanner.next());
                    fileScanner.next();
                    fileScanner.next();
                }
                fileScanner.close();
            } catch (FileNotFoundException e) {
                e.printStackTrace();
            }
            return dataSet;
        }

        public static void main(String[] args) {
            long start, end;

            // TEST A - Check Similarities with Documents/ Texts
            System.out.println("TEST A - Check Similarities with Documents/ Texts");
            String[] docs = {"testFile1.txt", "testFile1 - Copy.txt","testFile2.txt","testOof.txt","testOof2.txt"};
            Shingles ourShingles = new Shingles(docs);
            MinHash ourMinHash2 = new MinHash(ourShingles.convertShingles(), 1000);
            ourMinHash2.printSimilarities(0.2);

            //TEST B - Data Set taken from movieLens
            HashMap<String, ArrayList<Integer>> dataSet = getDataSet("u.data");
            System.out.println("\nTEST B - Data Set taken from movieLens");
            MinHash ourMinHash = new MinHash(dataSet, 6650);
            start = System.currentTimeMillis();
            ourMinHash.printSimilarities(0.4);
            end = System.currentTimeMillis();
            System.out.println("Test took " + (end - start) + "ms");
```

```
Console
<terminated> SimilaritiesTest (1) [Java Application] C:\Program Files\Java\jre1.8.0_181\bin\javaw.exe (11 Dec 2018, 23:36:19)
TEST A - Check Similarities with Documents/ Texts
Distancia : 0.000000 -> Key 1: testFile1 - Copy.txt Key 2: testFile1.txt

TEST B - Data Set taken from movieLens
Distancia : 0.163459 -> Key 1: 408 Key 2: 898
Distancia : 0.373684 -> Key 1: 489 Key 2: 587
Distancia : 0.321353 -> Key 1: 788 Key 2: 328
Test took 3757ms
```

MinHashLSH

```java
    */
public int intersectionsLSH(int[] a, int[] b) {
    int sum = 0;
    //Check if entries at index I of array A and array B are the sam
    for (int i = 0; i < a.length; i++) {
        if (a[i] == b[i]) {
            sum = 1;
            break;
        }
    }
    return sum;
}
```

MinHashLSH - Test

```java
public static void main(String[] args) {
    long start, end;

    // TEST A - Check Similarities with Documents/ Texts
    System.out.println("TEST A - Check Similarities with Documents/ Texts");
    String[] docs = {"testFile1.txt", "testFile1 - Copy.txt","testFile2.txt","testOof.txt","testOof2.txt"};
    Shingles ourShingles = new Shingles(docs);
    MinHashLSH ourMinHash2 = new MinHashLSH(ourShingles.convertShingles(), totalHashes: 1000, r: 10);
    ourMinHash2.printSimilarities( threshold: 0.20);

    //TEST B - Data Set taken from movieLens
    HashMap<String, ArrayList<Integer>> dataSet = getDataSet( file: "u.data");
    System.out.println("\nTEST B - Data Set taken from movieLens");
    MinHashLSH ourMinHash = new MinHashLSH(dataSet, totalHashes: 6650, r: 10);
    start = System.currentTimeMillis();
    ourMinHash.printSimilarities( threshold: 0.4);
    end = System.currentTimeMillis();
    System.out.println("It takes " + (end - start) + "ms");

}

}
```

SimilaritiesLSHTest > getDataSet()

SimilaritiesLSHTest ×

```
"C:\Program Files\Java\jdk1.8.0_171\bin\java.exe" ...
TEST A - Check Similarities with Documents/ Texts
Distancia : 0,000000 -> user 1: testFile1 - Copy.txt user 2: testFile1.txt

TEST B - Data Set taken from movieLens
Distancia : 0,155940 -> user 1: 408 user 2: 898
Distancia : 0,376241 -> user 1: 489 user 2: 587
Distancia : 0,320301 -> user 1: 788 user 2: 328
It takes 143ms

Process finished with exit code 0
```

Aplicação Final

Finding "spam" reviews on GOG.com

2

Kaggle & Our Data Sets

C:\Users\D.S\Desktop\Projeto\quarterGamesData.txt - Notepad++

File   Edit   Search   View   Encoding   Language   Settings   Tools   Macro   Run   Plugins   Window   ?

quarterGamesData.txt   halfGamesData.txt   allGamesData.txt

```
645  Finding Paradise,;,11.57,;,4.6,;,Freebird Games,;,Freebird Games,;,true,;,false,;,false,;,Adventure,-,,;,Crisco1492--.--true--.--This game is, like it's predecessor "To the Moon", a mo
646  STAR WARS™: Rogue Squadron 3D,;,9.99,;,4.1,;,Disney,;,Lucasfilm,;,true,;,false,;,false,;,Action,-,,;,Nason_Schooler--.--true--.--At first my T-Flight HOTAS flightstick wasn't recognize
647  The Curse of Monkey Island™,;,6.99,;,4.8,;,Disney,;,LucasArts,;,true,;,false,;,false,;,Adventure,-,,;,cthulhurising--.--false--.--This is one of the best games I've played ever. Great
648  American Conquest + Fight Back,;,5.99,;,4.3,;,GSC Game World,;,GSC Game World,;,true,;,true,;,false,;,Strategy,-,,;,gracz555--.--false--.--All ok but please do not change the default i
649  Silence Demo,;,0,;,4.1,;,Daedalic Entertainment,;,Daedalic Entertainment,;,true,;,false,;,false,;,Adventure,-,,;,igarcerant--.--true--.--Featuring gorgeous graphics and superb voice ac
650  Hand of Fate 2: The Servant and the Beast,;,6.6,;,-1,;,Defiant Development,;,Defiant Development,;,true,;,false,;,false,;,Role-playing,-,,;,
651  Absolver: Deluxe Edition,;,46.3,;,-1,;,Devolver Digital,;,Sloclap,;,true,;,true,;,true,;,Action,-,,;,
652  Cities in Motion Collection Upgrade,;,39.99,;,-1,;,Paradox Interactive,;,Colossal Order,;,true,;,false,;,false,;,Simulation,-,,;,daiquping--.--false--.--Good game, good line designer.
653  Sam & Max Beyond Time and Space,;,19.99,;,4.4,;,Telltale Games,;,Telltale Games,;,true,;,false,;,false,;,Adventure,-,,;,Chauzy--.--true--.--I like adventure games, I like Sam and Max,
654  Galactic Civilizations III - Map Pack DLC,;,0,;,-1,;,Stardock Entertainment,;,Stardock Entertainment,;,true,;,true,;,false,;,Strategy,-,,;,
655  Kerbal Space Program: Making History,;,17.35,;,-1,;,Private Division,;,Squad,;,true,;,false,;,false,;,Simulation,-,,;,FHGYuri--.--true--.--A DLC for a great game like KSP is poised to
656  Dark Fall 2: Lights Out,;,1.49,;,3.7,;,THQ Nordic GmbH,;,XXv Productions,;,true,;,false,;,false,;,Adventure,-,,;,SwedishHerring--.--true--.--Very boring game. 99% of the game is just a
657  DROD RPG: Tendry's Tale,;,5.99,;,-1,;,Caravel Games,;,Caravel Games,;,true,;,false,;,false,;,Role-playing,-,,;,Dohi64--.--true--.--DROD is a long-running franchise of puzzle games, sou
658  Depth of Extinction - Soundtrack,;,4.63,;,-1,;,HOF Studios,;,Kim Lightyear, Badass Wolf Shirt,;,true,;,false,;,false,;,Strategy,-,,;,
659  Faces of War,;,4.99,;,4.3,;,1C Publishing,;,Best Way,;,true,;,true,;,false,;,Strategy,-,,;,HerrSargnagel--.--true--.--The Idea of this game is pretty good. Graphics look nice and physi
660  Balrum,;,14.99,;,3.8,;,Balcony Team,;,Balcony Team,;,true,;,false,;,false,;,Role-playing,-,,;,ChaoticBlankness--.--true--.--As Steam's reviews will confirm many improvements have been
661  Vampire: The Masquerade - Redemption,;,1.49,;,4.2,;,Activision,;,Nihilistic Software,;,true,;,false,;,false,;,Role-playing,-,,;,assamite81--.--false--.--Lata przy papierowej Maskaradzi
662  Candleman: The Complete Journey,;,17.35,;,-1,;,Spotlightor Interactive,;,Spotlightor Interactive,;,true,;,false,;,false,;,Adventure,-,,;,Jimthesfn--.--true--.--A nice little puzzle wit
663  Tropico Reloaded,;,5.99,;,4.4,;,Kalypso Media Digital,;,PopTop,;,true,;,false,;,false,;,Strategy,-,,;,SeamusAndroid--.--false--.--Can't add much to other reviews other than to pass com
664  AquaNox 2: Revelation,;,5.99,;,3.9,;,THQ Nordic GmbH,;,Massive Development,;,true,;,false,;,false,;,Shooter,-,,;,X-Tech--.--true--.--I like this game a lot...I loved atmosphere in firs
665  Hollow Knight & Soundtracks,;,26.87,;,-1,;,Team Cherry,;,Team Cherry,;,true,;,false,;,false,;,Adventure,-,,;,Crisco1492--.--true--.--Hollow Knight, quite simply put, is a gorgeous hand
666  VVVVVV,;,4.99,;,4.4,;,Terry Cavanagh,;,Terry Cavanagh,;,true,;,false,;,false,;,Action,-,,;,SSJ-D-MAN--.--true--.--Put simply this game is just fun with a lovely throwback retro art sty
667  Return to Mysterious Island,;,9.99,;,4.2,;,Anuman Interactive,;,Kheops Studio,;,true,;,false,;,false,;,Adventure,-,,;,jarekgol--.--true--.--Very nice game, you can complete it with sev
668  BattleZone 98 Redux,;,19.99,;,4.4,;,Rebellion,;,Big Boat Interactive,;,true,;,false,;,false,;,Strategy,-,,;,Bladetrain3r--.--false--.--Lost a star due to uncompetitive price on GoG. For
669  Broken Sword 5 - the Serpent's Curse,;,24.99,;,4.2,;,Revolution Software,;,Revolution Software,;,true,;,false,;,false,;,Adventure,-,,;,Gawain_27--.--false--.--BS5 has the feeling of th
670  Ashes of the Singularity: Escalation - Epic Map Pack DLC,;,2.99,;,-1,;,Stardock Entertainment,;,Oxide Games,;,true,;,true,;,false,;,Strategy,-,,;,
671  Forgotten Realms: The Archives - Collection Two,;,9.99,;,4.7,;,GOG,;,Stormfront Studios & Strategic Simulations Inc.,;,true,;,false,;,false,;,Role-playing,-,,;,aevans0001--.--true--.--
672  Catacombs Pack,;,5.99,;,4.3,;,Catacomb Games,;,id Software, Softdisk Publishing,;,true,;,false,;,false,;,Shooter,-,,;,zerodin--.--true--.--I'm not gonna pretend to care about the first
673  Advent Rising,;,5.99,;,4,;,Majesco,;,GlyphX Games,;,true,;,false,;,false,;,Action,-,,;,TaffoVelikoff--.--true--.--I played this when it was released. Such an underrated game! I love ev
674  Kingdom Rush,;,9.99,;,4.3,;,Ironhide Game Studio,;,Ironhide Game Studio,;,true,;,false,;,false,;,Strategy,-,,;,Lashiec--.--false--.--Disclaimer: This is a review of the original Flash
675  Meridian: Squad 22 OST,;,1.99,;,-1,;,Merge Games,;,Headup Games,;,Elder Games,;,true,;,false,;,false,;,Strategy,-,,;,
676  Earth 2140 Trilogy,;,5.99,;,3.8,;,TopWare Interactive,;,Reality Pump Studios,;,true,;,false,;,false,;,Strategy,-,,;,Foxysen--.--true--.--Earth 2140 is RTS which is best compared to Com
677  Lilly Looking Through,;,9.99,;,3,;,Geeta Games,;,Geeta Games,;,true,;,false,;,false,;,Adventure,-,,;,mintee--.--true--.--This game does not support AMD Radeon 7700 graphics card, which
678  Where The Water Tastes Like Wine,;,23.17,;,-1,;,Good Shepherd Entertainment,;,Dim Bulb Games, Serenity Forge,;,true,;,false,;,false,;,Adventure,-,,;,Twobirds--.--true--.--Where The Wat
679  Evoland,;,9.99,;,3.3,;,Shiro Games,;,Shiro Games,;,true,;,false,;,false,;,Action,-,,;,mrak999--.--true--.--Linux support was promised but was removed later.,-,Sly_Boots_85--.--true--.
680  Mortal Kombat 1+2+3,;,5.99,;,4.1,;,Warner Bros. Interactive Entertainment,;,Midway Games,;,true,;,true,;,false,;,Action,-,,;,djtomee86--.--true--.--Always loved the MK franchise, espe
     Guild of Dungeoneering,;,14.99,;,3.5,;,Versus Evil,;,Gambrinous,;,true,;,false,;,false,;,Role-playing,-,,;,glanhub--.--true--.--Interesting idea, but it quickly becomes a boring and
```

Our Data Sets

2742 Games

allGamesData.txt

1371 Games

halfGamesData.txt

686 Games

quarterGamesData.txt

GoodOldGames

GoodOldGames – Game Page Example

GoodOldGames – Game Info Example

https://www.gog.com/game/wizard_of_legend
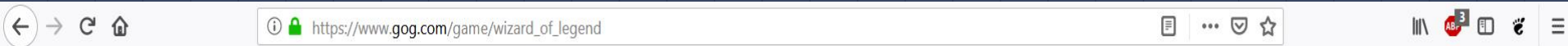
gog com   STORE ∨   ABOUT ∨   COMMUNITY ∨   SUPPORT ∨   SIGN IN ∨   🛒 0   🔍

Description

Wizard of Legend is a fast paced dungeon crawler with an emphasis on dynamic magical combat. Quick movement and even quicker use of spells will allow you to chain spells together to unleash devastating combinations against your enemies!

Unlock over 100 unique spells and discover powerful spell combinations! A wide variety of elemental spells allows you to create a hand best suited to your play style. Dive head first into the fray or stand back and let your minions do the work for you. The choice is yours!

- Fast-paced, spell-slinging combat with solo and local co-op play
- Use powerful spell combinations to destroy your enemies!
- Procedurally generated levels mean a new challenge every time!
- Endless customization with hundreds of spells, relics, and outfits to unlock!

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Why buy on GOG.com?

- **DRM FREE.** No activation or online connection required to play.
- **Money back guarantee.** 30 days coverage after purchase.

Game details

Genre: Action - Adventure - Fantasy

Works on: Windows (7, 8, 10), Linux (Ubuntu 14.04, Ubuntu 16.04, Ubuntu 18.04), Mac OS X (10.9+)

Released: May 15, 2018

Company: Contingent99 / Contingent99

Size: 408 MB

GoodOldGames – Review Example

https://www.gog.com/game/wizard_of_legend

gog.com   STORE ⌄   ABOUT ⌄   COMMUNITY ⌄   SUPPORT ⌄   **SIGN IN** ⌄   🛒 0   🔍

☆☆☆☆☆
+ Add your review

★4.2/5
overall rating

★4.2/5
verified owners rating

★4.2/5
filters based rating

Show: 60 on page ⌄   Order by: Most recent ⌄

★★★★★ Really a decent game.

Anoroah
Games: 15
Reviews: 1

November 20, 2018 • Verified owner

I just completed the game. It is a really well made game with good mechanics, great artwork, good music and addicting game-play. It had a number if issues for example you should get info of relics in the shop, also it would be really good to had more bosses (Lightning boss, and wind boss). Also some times it felt a little small and that its difficulty was high just to play it for a longer time. But overall I had an awesome time playing it and it is really worth every single pound I gave to buy it. I really expect more than Contingent99.
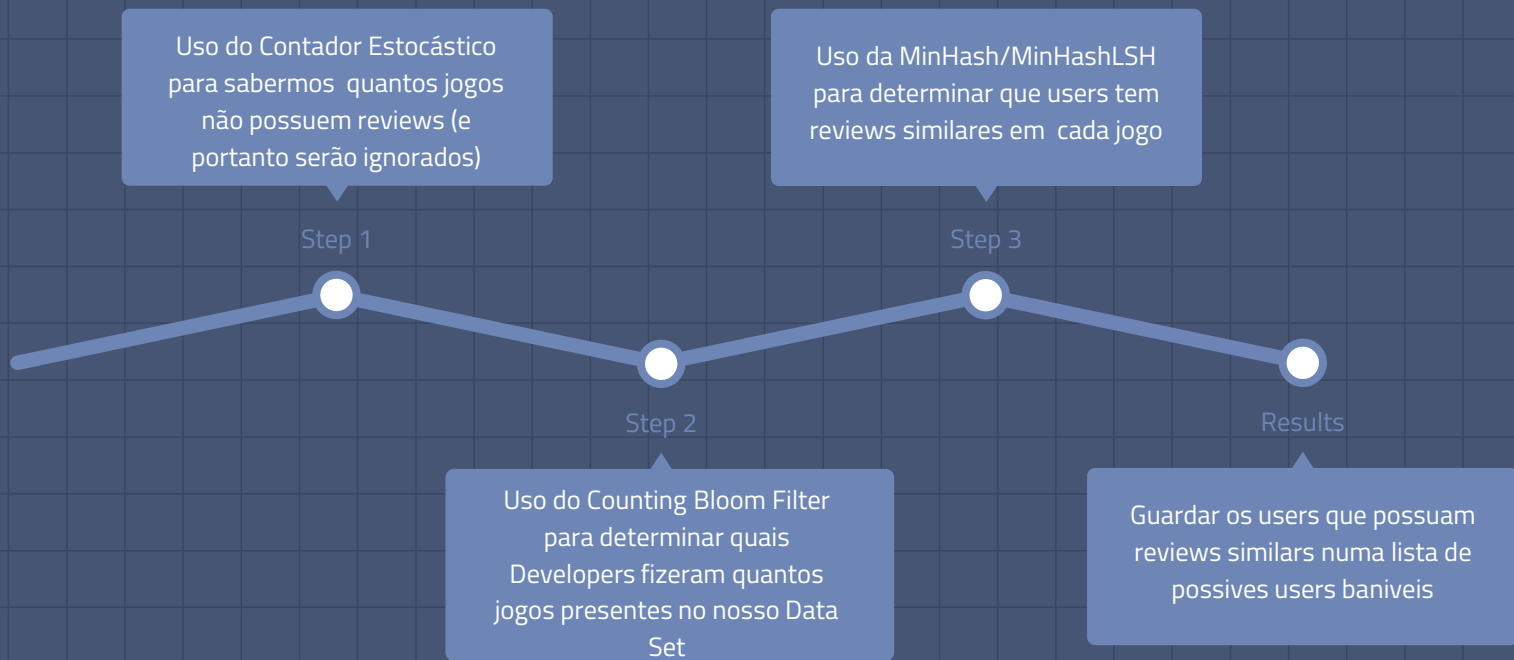
Is this helpful to you? yes no

⊗ **Written in** ⌃

☑ English
☑ Deutsch
☑ polski
☑ français
☑ русский
☑ 中文(简体)
☑ Others

Written by ⌃

☐ Verified owners
☐ Others

★★★★☆ Fun elemental action makes it a treat

Aplicação Final – Passos

Uso do Contador Estocástico para sabermos quantos jogos não possuem reviews (e portanto serão ignorados)

Uso da MinHash/MinHashLSH para determinar que users tem reviews similares em cada jogo

Step 1

Step 3

Step 2

Results

Uso do Counting Bloom Filter para determinar quais Developers fizeram quantos jogos presentes no nosso Data Set

Guardar os users que possuam reviews similars numa lista de possives users baniveis

Aplicação Final – Escolha do DataSet

```
14
15  public class actualFinalTest {
16      public static void main(String[] args) throws IOException{
17          BufferedReader br;
18
19          StochasticCounter thisCounterNoReviews = new StochasticCounter(0.5);  //Use to determine how many games have no reviews
20          StochasticCounter thisCounterTotal = new StochasticCounter(0.3); //Determine how many total games we're dealing with
21
22          ArrayList<String> gameDevs = new ArrayList<String>();   //DataSet: Developers
23          HashMap<String, HashMap<String,String>> gameReviews = new HashMap<String,  HashMap<String,String>>();   //DataSet: Name of Game - [User - Review]
24
25          String line;
26          String[] cutLine,reviews;
27          HashMap<String,String> temp;
28
29          Scanner scan = new Scanner(System.in);
30          System.out.println("Pick a data set:\n1 - Full Data Set (2700+ Games)\n2 - Half Data Set (1350+ Games)\n3 - Quarter Data Set(675+ Games)");
31          int inp = scan.nextInt();
32          scan.close();
33          switch(inp){
34              case 1:
35                  br = new BufferedReader(new FileReader("allGamesData.txt"));
36                  break;
37              case 2:
38                  br = new BufferedReader(new FileReader("halfGamesData.txt"));
39                  break;
40              case 3:
41                  br = new BufferedReader(new FileReader("quarterGamesData.txt"));
42                  break;
43
44              default:
45                  System.out.println("Invalid Option! Terminating program");
46                  return ;
47          }
48      //PART 1 - Determine how many games havent been reviewed (And initialize the dataSet Maps)
49          while((line = br.readLine()) != null) {
```
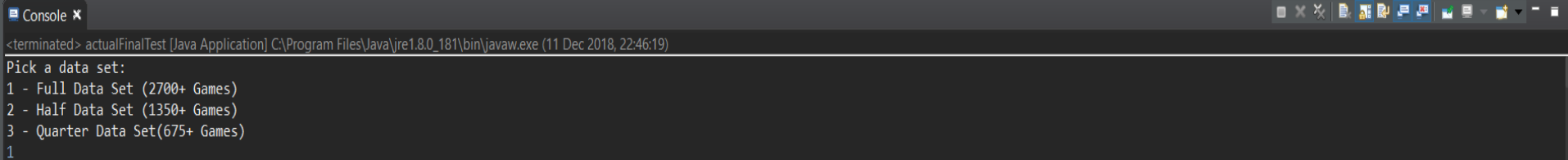
Aplicação Final – Parte 1

Aplicação Final – Parte 2

```
<terminated> actualFinalTest [Java Application] C:\Program Files\Java\jre1.8.0_181\bin\javaw.exe (11 Dec 2018, 22:49:43)
Dapper Penguin Studios developed: 2 out of 2742 games
Ace Team developed: 1 out of 2742 games
Z4g0 and Ivan Venturi Productions developed: 1 out of 2742 games
Dodge Roll developed: 1 out of 2742 games
B-evil developed: 1 out of 2742 games
THQ Nordic, Iron Lore Entertainment developed: 1 out of 2742 games
IonFX Studios developed: 1 out of 2742 games
Deep Silver Volition developed: 2 out of 2742 games
Pandemic Studios developed: 5 out of 2742 games
Cornfox & Bros developed: 1 out of 2742 games
Codex Worlds developed: 2 out of 2742 games
Reality Pump Studios developed: 6 out of 2742 games
Acid Wizard Studio developed: 1 out of 2742 games
Blue Byte, Related Designs developed: 1 out of 2742 games
Upper One Games developed: 1 out of 2742 games
Midnight Hub developed: 1 out of 2742 games
Flying Oak Games developed: 1 out of 2742 games
Straandlooper developed: 1 out of 2742 games
Artifex Mundi developed: 6 out of 2742 games
Puuba developed: 2 out of 2742 games
Turning Wheel LLC developed: 1 out of 2742 games
Greg Pryjmachuk developed: 1 out of 2742 games
Rogue Snail developed: 2 out of 2742 games
Seaven Studio developed: 1 out of 2742 games
Eugen Systems developed: 2 out of 2742 games
Yacht Club Games developed: 2 out of 2742 games
Stick Man Games developed: 1 out of 2742 games
Craneballs developed: 1 out of 2742 games
Digital Dreams Entertainment LLC developed: 1 out of 2742 games
Skilltree Studios developed: 1 out of 2742 games
Pencil Test Studios developed: 2 out of 2742 games
Brace Yourself Games developed: 6 out of 2742 games
Creative Forge Games developed: 5 out of 2742 games
Silmarils developed: 2 out of 2742 games
Digital Illusions developed: 1 out of 2742 games
================================================
Developer who made the most games: Lucasfilm    (32 games).
================================================
```

Aplicação Final – Parte 3 & Results

```
Noxâ„¢
================================================================
User 1: btcmalls72      User 2: btcmalls67      Distance 0.000000
================================================================


================================================================
Settlers® 4: Gold Edition, The
================================================================
User 1: Templer007      User 2: Roocher         Distance 0.105000
================================================================


================================================================
Phantasmagoria 2: A Puzzle of Flesh
================================================================
User 1: StrypeMcClaine   User 2: popov89         Distance 0.000000
================================================================


List of Candidate Users for banning (and ammount of times they posted a similar review to that of another user):

btcmalls92          ->      4
btcmalls78          ->      7
btcmalls67          ->      8
Fuz                 ->      1
btcmalls72          ->      8
mkmalls40           ->      4
btcmall63           ->      7
StrypeMcClaine      ->      1
Templer007          ->      1
mkmalls43           ->      7
mkmalls32           ->      6
mkmalls59           ->      5
mkmalls36           ->      4
Roocher             ->      1
popov89             ->      1
FuzFuz              ->      1
```

Spam Review – Bot Example

Show: **60 on page** ˅   Order by: **Most recent** ˅

❌ **Written in** ⌃

☑ English
☑ Deutsch
☑ polski
☑ français
☑ русский
☑ 中文(简体)
☑ Others

mkmalls43
Games: 7
Reviews: 14

★★★★★ **egds**
September 17, 2013

input this URL: (www.mkmalls.com/) you can find many cheap and high stuff Believe you will love it. WE ACCEPT CREDIT CARD /WESTERN UNION PAYMENT YOU MUST NOT MISS IT!!! www.mkmalls.com/Michael-Kors-Handbags-n2447/

Is this helpful to you?   yes   no   (0 of 1 users found this helpful)

Written by ⌃

☐ Verified owners
☐ Others

mkmalls32
Games: 7
Reviews: 20

★★★★★ **gfdsgds**
September 11, 2013

input this URL: (www.mkmalls.com/) you can find many cheap and high stuff Believe you will love it. WE ACCEPT CREDIT CARD /WESTERN UNION PAYMENT YOU MUST NOT MISS IT!!! www.mkmalls.com/Michael-Kors-Handbags-n2447/

Is this helpful to you?   yes   no   (0 of 1 users found this helpful)

Added ⌃

☐ Last 30 days
☐ Last 90 days

Spam Review – Same User, different accounts Example

⭐☆☆☆☆ **Keyboard not redefinable**

FuzFuz

Games: 0
Reviews: 1

July 9, 2017

Can't change keys. Unplayable.

Is this helpful to you? yes no (7 of 25 users found this helpful)

⭐☆☆☆☆ **Keyboard not redefinable.**

Fuz

Games: 177
Reviews: 24

July 9, 2017 • Verified owner

Can't change keys. Unplayable.

Is this helpful to you? yes no (4 of 23 users found this helpful)

⭐⭐☆☆☆ **Ne fonctionne pas.**

axotolys

Games: 38

July 9, 2017 • Verified owner

Impossible d'aller en avant le personnage penche sur la droite. Il faut se déplacer en marche arrière. Texture