Practica 3 Autor: Jose María Rentero Ruiz

Ejercicio 1 Salida a consola:

Introduce una palabra
Hola
Numero de letras 4
Empieza por vocal false
Acaba en vocal true
Numero de vocales 2
Contiene H true
Es un Palindromo false
Introduce una segunda string para ver si son iguales
hola
Son Iguales true
Introduce una palabra

```java
class PalabraLeida{

    private String palabra;

    public PalabraLeida(String palabra) { this.palabra = palabra; }

    public String getPalabra() { return palabra; }

    public void setPalabra(String palabra) { this.palabra = palabra; }

    public int NumeroDeLetras(){
        return palabra.length();
    }

    public boolean EmpiezaPorVocal() { return Pattern.matches( regex: "^[aeiouAEIOU].*$",palabra); }

    public boolean AcabaEnVocal() { return Pattern.matches( regex: "^.*[aeiouAEIOU]$",palabra); }

    public int NumeroDeVocales(){
        Pattern pat = Pattern.compile("[aeiouAEIOU]");
        Matcher mat = pat.matcher(this.palabra);
        int n = 0;
        while (mat.find())
            n++;
        return n;
    }

    public boolean ContieneH() { return Pattern.matches( regex: "^.*[hH].*$",palabra); }

    public boolean EsUnPalindromo(){
        StringBuilder s = new StringBuilder(palabra);
        return palabra.equals(s.reverse());
    }

    public boolean SonIguales(String palabra) { return palabra.toLowerCase().equals(this.palabra.toLowerCase());
```

```java
class TestPalabraLeida{

    private static final Scanner in = new Scanner(System.in);
    public static void main(String[] args) {
        PalabraLeida pal;
        do {
            System.out.println("Introduce una palabra");
            pal = new PalabraLeida(in.nextLine());
            System.out.println("Numero de letras "+pal.NumeroDeLetras());
            System.out.println("Empieza por vocal "+pal.EmpiezaPorVocal());
            System.out.println("Acaba en vocal "+pal.AcabaEnVocal());
            System.out.println("Numero de vocales "+pal.NumeroDeVocales());
            System.out.println("Contiene H "+pal.ContieneH());
            System.out.println("Es un Palindromo "+pal.EsUnPalindromo());
            System.out.println("Introduce una segunda string para ver si son iguales");
            System.out.println("Son Iguales "+pal.SonIguales(in.nextLine()));

        }while (!pal.getPalabra().equals("salir"));
    }
}
```

Ejercicio 2

Salida a consola:

FaZy6f6tlu89.4.SOPV:e82(v.LsPrJlCWNO,rIfX65=W:h1772=jZZQZY!9 ->
true -> false
PmJ})TG8PwGOgsJKA4Xqe¡=jkt}YG8¿gZ6 -> true
hQJ43OR:}s!VnWm3OzOu.T}Z:MX&ApINnz¿bgSGq08MVi -> true
(V1baZTLi8rXQ&g6CbPmChFR&.fC,:2NLeWMawYgadjCd7)wehkOaeeRk:q ->
true XoKNhq,8BU?¡aT{YSNm -> true
el}-Y@2c=?EyUFm,{Oxyw!.@We@DpwZ{¡BmH4cQrgaKaYvI¡jAUE?k29vct)iM!@JJz8v ->
true o1bb3!jQ2LrCbM:UY,mo))S53I{e6)45q0zoO¡)OX,CUv3vs-8VBpdF -> true
k203}S)Lcrek((N6Otrrrg{¿G¿,NDAgF -> true
I,¿p4dFw}s=-xG81.45}xFufIGbhcd4b:OwXdJCE3Ik -> true
ksb(-AiZuYkuSoifP¿IP1TUBjUr)GT -> true
xR9¡VJ&3NTUS6gVPOrR -> true
8ZR:{7f3GilfGkqA68}Zd(.kMm- -> true
&}Ng-e3UUGx3D6{NqcG3}-cHxtrBV -> true
}=fPcF6LG3!uNPO -> true
f2CJYVCe}vwYDX{}@AHv9N{cit}bDB&Lk{vJb0r21eQ,MTAiJT?!F5wv9MjI{-0X!o -> true
9j.VTRT{uyBTw2mYX0ke(H5AI39Pn=@9M?b0yzW?a.niSePWe0yy9h -> true
pig¿CMSLyXkCv)UJR3paa.7XhG5JDEsZsTm}k:nAtnu,Caebb4F-sAVGhbc?Ya8¡FJ ->
true KszIjlmgyf,@cpkxnC@su8-zz?6mD)u -> true
5Atmnx-JRrFc5{RI!.4Q=U¡Ry27cmkXb7NFE7JMIwRJZCNgP4uM?o(4D{bn ->
true 05XaSc!0anzsVAYDJ¡x4HJBJQaU-yxBOqxQdCOkIjhWYPFQukhemRK
-> true 71!Y4qE6¡Gtzi -> true
zDf}XpA4a -> true
}2DdoM17y7zn3:3RAqorpyQGz -> true
Dkg¡t:BvFuJ!,1miB&X}3RR{TV90kn4zK&f¿ -> true

```java
class ClaveSegura{

    private String clave;

    public ClaveSegura(String clave) { this.clave = clave; }

    public String getClave(){ return clave; }

    public void setClave(String clave) { this.clave = clave; }

    public boolean esClaveSegura(){
        return clave.length()>=8&&clave.matches( regex: ".*[a-z].*")&&clave.matches( regex: ".*[A-Z].*")&&clave.matches( regex: ".*[\\d].*")&&clave.matches( regex: ".*[^\\d\\w].*");
    }
}
```

```java
class TestClaveSegura{

    private static final String FUENTE_CARACTERES = "aAbBcCdDeEfFgGhHiIjJkKlLm-MnNoOpPqQrRsStTuUvVwWxXyYzZ0123456789¿?()=@.:,!;&{}"·
    private static final Random r = new Random();
    public static void main(String[] args) {
        for (int i = 0; i < 30; i++) {
            int longitud = r.nextInt(FUENTE_CARACTERES.length());
            StringBuilder pass = new StringBuilder();
            for (int j = 0; j < longitud; j++) {
                pass.append(FUENTE_CARACTERES.charAt(r.nextInt(FUENTE_CARACTERES.length())));
            }
            ClaveSegura clave = new ClaveSegura(pass.toString());
            System.out.println(clave.getClave()+" -> "+ clave.esClaveSegura());
        }
    }
}
```

Ejercicio 3

Salida a consola:

Leidas 4955 palabras
Nombres que empiezan por A
[aaren, aarika, abagael, abagail, abbe, abbey, abbi, abbie, abby, abbye, abigael, abigail, abigale, abra, ada, adah, adaline, adan, adara, adda, addi, addia, addie, addy, adel, adela, adelaida, adelaide, adele, adelheid, adelice, adelina, adelind, adeline, adella, adelle, adena, adey, adi, adiana, adina, adora, adore, adoree, adorne, adrea, adria, adriaens, adrian, adriana, adriane, adrianna, adrianne, adriena, adrienne, aeriel, aeriela, aeriell, afton, ag, agace, agata, agatha, agathe, aggi, aggie, aggy, agna, agnella, agnes, agnese, agnesse, agneta, agnola, agretha, aida, aidan, aigneis, aila, aile, ailee, aileen, ailene, ailey, aili, ailina, ailis, ailsun, ailyn, aime, aimee, aimil, aindrea, ainslee, ainsley, ainslie, ajay, alaine, alameda, alana, alanah, alane, alanna, alayne, alberta, albertina, albertine, albina, alecia, aleda, aleece, aleen, alejandra, alejandrina, alena, alene, alessandra, aleta, alethea, alex, alexa, alexandra, alexandrina, alexi, alexia, alexina, alexine, alexis, alfi, alfie, alfreda, alfy, ali, alia, alica, alice, alicea, alicia, alida, alidia, alie, alika, alikee, alina, aline, alis, alisa, alisha, alison, alissa, alisun, alix, aliza, alla, alleen, allegra, allene, alli, allianora, allie, allina, allis, allison, allissa, allix, allsun, allx, ally, allyce, allyn, allys, allyson, alma, almeda, almeria, almeta, almira, almire, aloise, aloisia, aloysia, alta, althea, alvera, alverta, alvina, alvinia, alvira, alyce, alyda, alys, alysa, alyse, alysia, alyson, alyss, alyssa, amabel, amabelle, amalea, amalee, amaleta, amalia, amalie, amalita, amalle, amanda, amandi, amandie, amandy, amara, amargo, amata, amber, amberly, ambur, ame, amelia, amelie, amelina, ameline, amelita, ami, amie, amii, amil, amitie, amity, ammamaria, amy, amye, ana, anabal, anabel, anabella, anabelle, analiese, analise, anallese, anallise, anastasia, anastasie, anastassia, anatola, andee, andeee, anderea, andi, andie, andra, andrea, andreana, andree, andrei, andria, andriana, andriette, andromache, andy, anestassia, anet, anett, anetta, anette, ange, angel, angela, angele, angelia, angelica, angelika, angelina, angeline, angelique, angelita, angelle, angie, angil, angy, ania, anica, anissa, anita, anitra, anjanette, anjela, ann, ann-marie, anna, anna diana, anna-diane, anna-maria, annabal, annabel, annabela, annabell,

annabella, annabelle, annadiana, annadiane, annalee, annaliese, annalise, annamaria, annamarie, anne, anne-corinne, anne-marie, annecorinne, anneliese, annelise, annemarie, annetta, annette, anni, annice, annie, annis, annissa, annmaria, annmarie, annnora, annora, anny, anselma, ansley, anstice, anthe, anthea, anthia, anthiathia, antoinette, antonella, antonetta, antonia, antonie, antonietta, antonina, anya, appolonia, april, aprilette, ara, arabel, arabela, arabele, arabella, arabelle, arda, ardath, ardeen, ardelia, ardelis, ardella, ardelle, arden, ardene, ardenia, ardine, ardis, ardisj, ardith, ardra, ardyce, ardys, ardyth, aretha, ariadne, ariana, aridatha, ariel, ariela, ariella, arielle, arlana, arlee, arleen, arlen, arlena, arlene, arleta, arlette, arleyne, arlie, arliene, arlina, arlinda, arline, arluene, arly, arlyn, arlyne, aryn, ashely, ashia, ashien, ashil, ashla, ashlan, ashlee, ashleigh, ashlen, ashley, ashli, ashlie, ashly, asia, astra, astrid, astrix, atalanta, athena, athene, atlanta, atlante, auberta, aubine, aubree, aubrette, aubrey, aubrie, aubry, audi, audie, audra, audre, audrey, audrie, audry, audrye, audy, augusta, auguste, augustina, augustine, aundrea, aura, aurea, aurel, aurelea, aurelia, aurelie, auria, aurie, aurilia, aurlie, auroora, aurora, aurore, austin, austina, austine, ava, aveline, averil, averyl, avie, avis, aviva, avivah, avril, avrit, ayn]

Nombres que no terminan por vocal
[aaren, abagael, abagail, abbey, abby, abigael, abigail, adah, adan, addy, adel, adelheid, adelind, adey, adriaens, adrian, aeriel, aeriell, afton, ag, aggy, agnes, aidan, aigneis, aileen, ailey, ailis, ailsun,
ailyn, aimil, ainsley, ajay, alanah, aleen, alex, alexis, alfy, alis, alison, alisun, alix, alleen, allis, allison, allix, allsun, allx, ally, allyn, allys, allyson, alys, alyson, alyss, amabel, amandy, amber, amberly, ambur, amil, amity, amy, anabal, anabel, andy, anet, anett, angel, angil, angy, ann, annabal, annabel, annabell, annis, anny, ansley, april, arabel, ardath, ardeen, ardelis, arden, ardis, ardisj, ardith, ardys, ardyth, ariel, arleen, arlen, arly, arlyn, aryn, ashely, ashien, ashil, ashlan, ashleigh, ashlen, ashley, ashly, astrid, astrix, aubrey, aubry, audrey, audry, audy, aurel, austin, averil, averyl, avis, avivah, avril, avrit, ayn, bab, babb, babs, bamby, barb, barbey, barby, barry, beatrix, beatriz, becky, beilul, beitris, bel, bell, benny, beret, berget, berny, berry, bert, berty, beryl, bess, bessy, beth, bethany, betsey, betsy, bette-ann, betteann, betty, beulah, bev, beverley, beverly, bevvy, bibby, biddy, bidget, bill, billy, binny, bird, birgit, blair, blakeley, blanch, blinny, bliss, blondell, blondy, bobby, bonny, brandais, brandy, brear, bren, brenn, brett, bridget, brier, brigid, brigit, briney, brinn, briny, brit, britney, britt, brittan, brittaney, brittany, britteny, brittney, brook, brooks, bryn, brynn, buffy, bunny, caitlin, caitrin, cal, calley, cally, cam, camel, cammy, candis, candy, caren, carey, caril, carilyn, carin, carleen, carlen, carley, carlin, carly, carlyn, carlynn, carmel, carmen, carmon, carol, carol-jean, carolan, carolann, carolin, caroljean, carolyn, carolynn, caron, carroll, carry, cary, caryl, caryn, casey, cass, cassandry, cassey, cassy, catherin, cathleen, cathrin, cathryn, cathy, cathyleen, catlin, caty, cecil, ceciley, cecily, ceil, celestyn, chad, chandal, chantal, charil, charin, charis, charity, charlean, charleen, charlot, charmain, charmian, charmion, charyl, chastity, chelsey, chelsy, cher, cherey, cherilyn, cherilynn, cherin, cherish, cherlyn, cherry, chery, cheryl, chicky, chloris, chris, chrissy, christabel, christal, christan, christean, christel, christen, christian, christin, christy, chrysler, chrystal, chrystel, cicely, cicily, ciel, cindelyn, cindy, cinnamon, cissy, clair, clarey, claribel, clary, clem, clemmy, cloris, clovis, cody, coleen, colleen, collen, colly, con, conny, constancy, corabel, coral, coralyn, cordey, cordy, coreen, corey, coriss, corliss, corly, corny, correy, corry, cortney, cory, courtenay, courtnay, courtney, crin, cris, crissy, cristabel, cristal, cristen, cristin, cristy, crystal, cyb, cybil, cybill, cyndy, cynthy, dacey, dacy, dael, daffy, dagmar, daisey, daisy, dallas, daloris, damaris, danell, danit, danny, darb, darby, darcey, darcy, dareen, darell, darleen, darlleen, daron, darryl, darsey, daryl, daryn, daveen, dawn, deb, debby, debor, deborah, deeann, deeyn,

del, delilah, dell, delly, delores, deloris, demeter, demetris, denny, deny, denys, devan, devin, devon, diahann, dian, diann, dinah, dinny, dion, dionis, dix, dniren, dody, doll, dolley, dolly, dolores, doloritas, donnajean, donny, doralin, doralyn, doralynn, doreen, dorey, dorian, doris, dorothy, dorris, dorry, dorthy, dory, dot, dotty, dreddy, drucill, drucy, drusy, dulcy, dusty, dyan, dyann, dynah, eadith, ealasaid, easter, ebony, eddy, eden, edin, edith, edy, edyth, eileen, eilis, eleanor, eleen, elinor, elisabet, elisabeth, elizabet, elizabeth, ellen, elly, ellyn, ellynn, elsbeth, elset, elsey, elspeth, elsy, elyn, em, emily, emlyn, emlynn, emmalyn, emmalynn, emmey, emmy, enid, eran, erin, erinn, eryn, essy, estel, estell, ester, esther, ethel, ethelin, ethelind, ethelyn, ethyl, etty, evaleen, evangelin, eveleen, evelyn, evey, evvy, evy, faith, fallon, fan, fanchon, fancy, fanny, farah, farand, farrah, farrand, faun, fawn, fay, fayth, felicdad, felicity, fern, fey, fiann, fidelity, fleur, flor, floris, florry, flory, flossy, flss, fran, frances, frank, franky, franny, fred, freddy, gabbey, gabey, gabriel, gabriell, gaby, gael, gail, gale , garland, garnet, gates, gay, gayel, gayleen, gaynor, gennifer, genny, germain, gerry, gert, gertrud, gertrudis, gerty, gill, gillan, gillian, gilligan, gilly, ginger, ginnifer, ginny, gipsy, glad, gladys, glen, glenn, glennis, glory, glyn, glynis, glynnis, goldy, gray, greer, gretal, gretchen, gretel, grethel, grier, grissel, guendolen, gus, gussy, gusty, gwen, gwendolen, gwendolin, gwendolyn, gweneth, gwenneth, gwenny, gwyn, gwyneth, gypsy, haily, haleigh, haley, halley, hally, hannah, hannis, hanny, happy, harley, harmony, harriet, harriett, harriot, harriott, hatty, hayley, hazel, heath, heather, hedvig, hedwig, hedy, helen, helen-elizabeth, helenelizabeth, helyn, hephzibah, hester, hesther, hetty, hilary, hildagard, hildegaard, hildy, hillary, hilliary, holly, honey, honor, hyacinth, ibby, idell, imogen, imojean, ines, inez, ingaberg, ingaborg, ingeberg, ingeborg, inger, ingrid, iris, isabel, iseabal, isis, isobel, issy, ivett, ivory, ivy, izabel, jackelyn, jacklin, jacklyn, jackquelin, jacky, jaclin, jaclyn, jacquelin, jacquelyn, jacquelynn, jacynth, jan, jandy, janean, janeen, janel, janet, janey, janifer, janis, janith, jannel, janot, jany, jaquelin, jaquelyn, jaquith, jasmin, jaynell, jazmin, jean, jemimah, jemmy, jen, jenifer, jeniffer, jenn, jennifer, jenny, jerrilyn, jerry, jess, jessalin, jessalyn, jessamyn, jesselyn, jessy, jewel, jewell, jill, jilleen, jillian, jilly, jinny, jo ann, jo-ann, joan, joann,

joannes, jobey, joby, jocelin, jocelyn, jody, joeann, joell, joellen, joelly, joellyn, joelynn, joey, johannah, johnath, joleen, joly, jolyn, jolynn, jonell, jonis, jordain, jordan, jorey, jorry, joscelin, josey, josselyn, josy, jourdan, joy, joyan, joyann, joycelin, joyous, judith, judy, juliann, juliet, justinn, kacey, kacy, kailey, kaitlin, kaitlyn, kaitlynn, kally, kamilah, kamillah, kandy, kara-lynn, karalynn, karel, karen, karil, karilynn, karin, karleen, karlen, karly, karlyn, karmen, karol, karoly, karon, karrah, karry, kary, karyl, karylin, karyn, kasey, kass, kassey, kat, katalin, katey, kath, katharyn, katheryn, kathleen, kathlin, kathryn, kathy, katleen, katlin, katy, kay, kayley, kaylil, kaylyn, keeley, keely, kelcey, kelcy, kellen, kelley, kelly, kellyann, kelsey, kelsy, keriann, kerrill, kerrin, kerry, kerstin, kesley, kessiah, ketty, kevyn, kiah, kial, kiersten, kiley, kim, kimberley, kimberly, kimberlyn, kimmy, kip, kipp, kippy, kirby, kirsten, kirstin, kirstyn, kissiah, kit, kitty, koral, koren, korney, korry, kris, krissy, kristal, kristan, kristel, kristen, kristien, kristin, kristy, kristyn, krystal, kylen, kylynn, kym, kyrstin, lacey, lacy, lainey, laney, lanny, lark, laural, laureen, laurel, lauren, lauryn, layney, leah, leann, leanor, leeann, leelah, leigh, leilah, lelah, leland, lesley, lesly, letty, lexis, lexy, lian, lib, libbey, libby, lil, lilah, lilas, lilian, lilias, lilith, lillian, lillis, lilly, lily, lilyan, lin, lind, lindsay, lindsey, lindsy, lindy, linell, linet, linn, linnell, linnet, linzy, lisabeth, lisbeth, lissy, liv, livvy, livvyy, livy, liz, lizabeth, lizbeth, lizzy, lois, lolly, lorain, loralyn, loreen, loren, lorilyn, lorrin, lorry, lory, lotty, lucky, lucy, lurleen, luz, lyn, lyndel, lyndell, lyndsay, lyndsey, lyndy, lynett, lynn, lynnell, lynnet, lynnett, lynsey, mab, mabel, madalyn, maddy, madel, madelin, madelon, madelyn, madlen, madlin, mady, maegan, mag, magdalen, maggy, maighdiln, mair, maisey, mallory, malory, mandy, manon, marabel, marcy, mareah, maren, margalit, margaret, margaux, margeaux, margery, marget, margit, margot, margret, margy, mariam, marian, mariann, maribel, maribeth, maridel, marie-ann, marieann, mariel, mariellen, marigold, marilin, marillin, marilyn, marin, marion, maris, marj, marjory, marjy, marleah, marleen, marley, marlyn, marney, marris, marty, mary, maryann, marybeth, maryellen, maryl, marylin, marys, matty, maud, maureen, mavis, max, maxy, may, mead, meagan,

meaghan, meg, megan, megen, meggy, meghan, meghann, mehetabel, mel, melany, melicent, melisent, mellicent, mellisent, melloney, melly, melody, melony, mercedes, mercy, meredith, meridel, meridith, meriel, merilyn, meris, merl, merrill, merrily, merry, mersey, meryl, michal, michel, michell, micky, mignon, mil, mildred, mildrid, milicent, milissent, millicent, millisent, milly, min, mindy, minny, mirabel, miran, miriam, missy, misty, modesty, moll, molly, mommy, monah, moreen, morgan, morgen, muffin, mureil, murial, muriel, myrah, myriam, nadean, nadeen, nady, nan, nancey, nancy, nanny, nanon, nat, natividad, natty, neely, nell, nelly, nert, nerty, nessy, netty, nichol, nicky, nicol, ninon, nissy, noel, noell, noellyn, noelyn, nonah, nonnah, norah, norean, noreen, norry, oliy, olly, olwen, opal, orel, orly, pam, pammy, pansy, pat, patsy, patty, pauly, pearl, peg, pegeen, peggy, pen, penny, perl, perry, persis, pet, phil, philis, phillis, philly, phylis, phyllis, phyllys, phylys, pier, piper, pippy, polly, pooh, poppy, pris, prudy, quentin, quinn, rachael, rachel, raeann, raf, rahal, rahel, rakel, randy, raquel, raven, ray, raychel, raynell, rayshell, rebekah, rebekkah, regan, remy, renell, revkah, rey, rhiamon, rhianon, rhody, riannon, rianon, ricky, rivkah, rivy, robbin, robby, robbyn, robin, robinet, robinett, roby, robyn, roch, rochell, rois, romy, ronny, rory, ros, rosabel, rosaleen, rosalind, rosalyn, rosalynd, rosamond, rosamund, roseann, roselin, rosemary, roslyn, rosy, row, roxy, roz, rozalin, rozamond, ruby, ruth, ruthann, ruthy, ryann, sal, salaidh, sally, sallyann, sam, sammy, sandy, sara-ann, saraann, sarah, scarlet, scarlett, sean, shandeigh, shandy, shannah, shannen, shannon, shanon, sharity, sharl, sharleen, sharon, sharron, sharyl, shaun, shawn, shay, shaylah, shaylyn, shaylynn, sheelagh, sheelah, sheila-kathryn, sheilah, sheilakathryn, shel, shelagh, shelby, shell, shelley, shelly, sher, sherill, sherilyn, sherry, sheryl, shir, shirl, shirleen, shirley, sib, sibby, sibeal, sibel, sibley, sibyl, sidoney, sigrid, sileas, siobhan, sioux, sisely, sissy, siusan, sonny, sophey, stacey, stacy, star, starlin, starr, stoddard, storm, stormy, suellen, sukey, sunny, susan, susann, susannah, susy, suzann, suzy, sybil, sybyl, sydel, sydney, tabby, taffy, tallulah, tally, talyah, tamar, tamarah, tammy, tamqrah, tandy, tanitansy, tansy, tarah, tarrah, taryn, tatum, ted, teddy, teriann, terry, tess, tessy, thomasin, tierney, tiff, tiffany, tiffy, tildy, tilly, tim, timmy, tiphany, tish, tobey, toby, tommy, tony, torey, tory, tracey, tracy, trish, trix, trixy, trudey, trudy, tuesday, val, valery, vally, valry, van, vanny, velvet, venus, veradis, vevay, vicky, vikky, vin, vinny, violet, viv, vivian, vivien, viviyan, vivyan, vonny, vyky, wallis, walliw, wally, waly, wandis, wanids, wendy, wenonah, whitney, wileen, willow, willy, willyt, wilow, windy, winifred, winnah, winnifred, winny, winonah, wren, wynn, wynny, yasmeen, yasmin, yetty, ynes, ynez, ysabel, zarah, zorah]

Nombres mas pequeños
[ag, de, di, em, jo, ki, lu, vi]

Nombres mas grandes
[helen-elizabeth]

```java
public static void main(String[] args) {
    ArrayList<String> nombres = new ArrayList<>();
    while (in.hasNext())
        nombres.add(in.nextLine());

    if(args.length!=0){
        System.out.println(args[0].toLowerCase()+" esta en la lista = "+nombres.contains(args[0].toLowerCase()));
        return;
    }

    System.out.println("Leidas "+nombres.size()+" palabras");
    ArrayList<String> nombresEmpiezanA = new ArrayList<>();
    ArrayList<String> nombresNoTerminanVocal = new ArrayList<>();
    for (String nombre: nombres) {
        if(nombre.matches( regex: "^[aA].*"))
            nombresEmpiezanA.add(nombre);
        if(nombre.matches( regex: ".*[^aeiouAEIOU]$"))
            nombresNoTerminanVocal.add(nombre);
    }
    System.out.println("Nombres que empiezan por A");
    System.out.println(nombresEmpiezanA);
    System.out.println("\n\n\n\n\nNombres que no terminan por vocal");
    System.out.println(nombresNoTerminanVocal);

    ArrayList<String> menos = new ArrayList<>();
    ArrayList<String> mas = new ArrayList<>();
    menos.add(nombres.get(0));
    mas.add(nombres.get(0));

    for (String nombre: nombres) {
        if(nombre.length()<menos.get(0).length()) {
            menos = new ArrayList<>();
            menos.add(nombre);
        }else if(nombre.length()==menos.get(0).length())
            menos.add(nombre);

        if(nombre.length()>mas.get(0).length()) {
            mas = new ArrayList<>();
            mas.add(nombre);
        }else if(nombre.length()==mas.get(0).length())
            mas.add(nombre);
    }
    System.out.println("\n\n\n\n\nNombres mas pequeños");
    System.out.println(menos);
    System.out.println("\n\n\n\n\nNombres mas grandes");
    System.out.println(mas);

}
```

Ejercicio 4

Salida a consola:

numero de palabras 561
numero de preposiciones 77
numero de articulos determinados 55
numero de articulos indeterminados 10
primeras 10 a mayusculas ESPECIALES

```java
public static void main(String[] args) throws FileNotFoundException {
    Random r = new Random();
    ArrayList<String> palabras = new ArrayList<>();
    File file = new File( pathname: "constitucion.txt");
    Scanner lector = new Scanner(file);
    while (lector.hasNext())
        palabras.add(lector.next());
    StringBuilder p = new StringBuilder();
    for (int i = 0; i < 500; i++) {
        p.append(palabras.get(r.nextInt(palabras.size()))+" ");
    }

    System.out.println("numero de palabras "+Constitucion.numeroPalabras(p.toString()));
    System.out.println("numero de preposiciones "+Constitucion.numeroPreposiciones(p.toString()));
    System.out.println("numero de articulos determinados "+Constitucion.numeroArticulosDeterminados(p.toString()));
    System.out.println("numero de articulos indeterminados "+Constitucion.numeroArticulosIndeterminados(p.toString()));
    System.out.println("primeras 10 a mayusculas " +Constitucion.devolverMayuscula( comienzo: 0, fin: 10,p.toString()));

}
```

```java
class Constitucion{
    public static final String[] ARTICULOS_DETERMINADOS = {"el","la","los","las"};
    public static final String[] ARTICULOS_INDETERMINADOS = {"un","unos","una","unas"};
    public static final String[] PREPOSICIONES = {"a","ante","bajo","con","contra","de"
            ,"desde","en","entre","hacia","hasta","durante","mediante","para","por","pro"
            ,"sin","so","sobre","tras","versus","via"};

    public static int numeroPalabras(String frase){
        int n = 0;
        Matcher mat = Pattern.compile("[\\w]+").matcher(frase);
        while (mat.find())
            n++;
        return n;
    }

    public static int numeroPreoposiciones(String frase){
        int n = 0;
        String[] palabras = frase.split( regex: "\\s");
        for (int i = 0; i < palabras.length; i++) {
            for (int j = 0; j < PREPOSICIONES.length; j++) {
                if(PREPOSICIONES[j].equals(palabras[i]))
                    n++;
            }
        }
        return n;
    }

    public static int numeroArticulosDeterminados(String frase){
        int n = 0;
        String[] palabras = frase.split( regex: "\\s");
        for (int i = 0; i < palabras.length; i++) {
            for (int j = 0; j < ARTICULOS_DETERMINADOS.length; j++) {
                if(ARTICULOS_DETERMINADOS[j].equals(palabras[i]))
                    n++;
            }
        }
        return n;
    }

    public static int numeroArticulosIndeterminados(String frase){
        int n = 0;
        String[] palabras = frase.split( regex: "\\s");
        for (int i = 0; i < palabras.length; i++) {
            for (int j = 0; j < ARTICULOS_INDETERMINADOS.length; j++) {
                if(ARTICULOS_INDETERMINADOS[j].equals(palabras[i]))
                    n++;
            }
        }
        return n;
    }

    public static String devolverMayuscula(int comienzo, int fin, String frase){
        return frase.substring(comienzo,fin-comienzo).toUpperCase();
    }
}
```