**《Java语言程序设计》课程实验报告**

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| **专业名称** | 计算机科学与技术 | **年级** | 2017 | **班级** | 计2 |
| **学生姓名** | 王汝芸 | **指导老师** | 李焱 | **时间** | 2019.04.11 |

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| 实验名称 | 方法2 |
| 实验 目 的 及 要 求 | **目的**：  了解熟悉Java程序设计的形式，编写完整Java程序。  **要求**：   * 掌握方法的结构形式； * 掌握方法的定义与声明； * 掌握方法的设计与调用； * 注意避免易犯的错误； * 会用Java编写完整的程序。 |
| 实 验 环 境 | Microsoft Windows 10 家庭中文版（简体中文）64位  JDK 1.8.0\_201  IntelliJ IDEA Community Edition 2018.3.4 |
| 实 验 内 容 | 请按照要求编写出完整程序   * 第6章编程练习题(P202): 6.23-6.27, 6.30，6.35，6.38，6.39 |
| 实 验 步 骤 或 实 验 方 案 | **课后题6.23**  01 **package** sdnu.wry.demo;  02 **public class** Homework {  03 **public static void** **main**(String[] args) {  04 String str = "Welcome to Java";  05 System.out.**println**(str+"中e出现"+**count**(str,'e')+"次");  06  07 }  08 **public static int** **count**(String str,**char** a){  09 **int** count = 0;  10 String [] str\_arr = str.**split**("");  11 **for**(**int** i = 0;i<str\_arr.length;i++){  12 **if**(str\_arr[i].**charAt**(0)==a){  13 count++;  14 }  15 }  16 **return** count;  17 }  18 }  **课后题6.24**  01 **package** sdnu.wry.demo;  02 **import** java.util.Date;  03 **import** java.text.SimpleDateFormat;  04 **public class** Homework {  05 **public static void** **main**(String[] args) {  06 Date date = **new** **Date**();  07 date.**getTime**() ;  08 SimpleDateFormat df = **new** **SimpleDateFormat**("yyyy-MM-dd HH:mm:ss");*//设置日期格式*  09 System.out.**println**(df.**format**(**new** **Date**()));*// new Date()为获取当前系统时间*  10 }  11 }  **课后题6.25**  01 **package** sdnu.wry.demo;  02 **public class** Homework {  03 **public static void** **main**(String[] args) {  04 **long** millis = 555550000;  05 System.out.**println**(millis+"毫秒为"+**converMillis**(millis));  06 }  07 **public static** String **converMillis**(**long** millis){  08 **long** h,min,s;  09 h = millis/(1000\*60\*60);  10 min = (millis-h\*3600000)/(1000\*60);  11 s = (millis-h\*3600000-min\*60000)/(1000);  12 **return** h+"小时"+min+"分钟"+s+"秒";  13 }  14 }  **课后题6.26**  01 **package** sdnu.wry.demo;  02 **public class** Homework {  03 **public static void** **main**(String[] args) {  04 **int** count=0;  05 **for**(**long** i = 1;;i++){  06 **if**(**isPrime**(i) && **isReverse**(i)){  07 System.out.**print**(i+"\t");  08 count++;  09 **if**(count%10==0){  10 System.out.**print**('\n');  11 }  12 }  13  14 **if**(count>=100){  15 **break**;  16 }  17 }  18  19 }  20 **public static boolean** **isReverse**(**long** num){  21 String num\_str = num+"";  22 StringBuffer buffer = **new** **StringBuffer**(num\_str);  23 String num\_rev\_str = buffer.**reverse**().**toString**();  24 **int** num\_rev\_int = Integer.**parseInt**(num\_rev\_str);  25 **return** num\_rev\_int==num;  26 }  27  28 **public static boolean** **isPrime**(**long** num){  29 **if**(num<=3){  30 **return** num>1;  31 }  32 **if**(num%6!=1 && num%6!=5){  33 **return** **false**;  34 }  35 **int** sqrt = (**int**)Math.**sqrt**(num);  36 **for** (**int** i = 5;i<=sqrt;i+=6){  37 **if**(num%i==0 || num%(i+2)==0){  38 **return** **false**;  39 }  40 }  41 **return** **true**;  42 }  43 }  **课后题6.27**  01 **package** sdnu.wry.demo;  02 **public class** Homework {  03 **public static void** **main**(String[] args) {  04 **int** count=0;  05 **for**(**long** i = 1;;i++){  06 **if**(**isPrime**(i) && !**isReverse**(i) && **isPrime**(**Reverse**(i))){  07  08 System.out.**print**(i+"\t");  09 count++;  10 **if**(count%10==0){  11 System.out.**print**('\n');  12 }  13 }  14  15 **if**(count>=100){  16 **break**;  17 }  18 }  19  20 }  21 *//判断转置*  22 **public static boolean** **isReverse**(**long** num){  23 String num\_str = num+"";  24 StringBuffer buffer = **new** **StringBuffer**(num\_str);  25 String num\_rev\_str = buffer.**reverse**().**toString**();  26 **int** num\_rev\_int = Integer.**parseInt**(num\_rev\_str);  27 **return** num\_rev\_int==num;  28 }  29 *//转置*  30 **public static long** **Reverse**(**long** num){  31 String num\_str = num+"";  32 StringBuffer buffer = **new** **StringBuffer**(num\_str);  33 String num\_rev\_str = buffer.**reverse**().**toString**();  34 **int** num\_rev\_int = Integer.**parseInt**(num\_rev\_str);  35 **return** num\_rev\_int;  36 }  37 *//判断是素数*  38 **public static boolean** **isPrime**(**long** num){  39 **if**(num<=3){  40 **return** num>1;  41 }  42 **if**(num%6!=1 && num%6!=5){  43 **return** **false**;  44 }  45 **int** sqrt = (**int**)Math.**sqrt**(num);  46 **for** (**int** i = 5;i<=sqrt;i+=6){  47 **if**(num%i==0 || num%(i+2)==0){  48 **return** **false**;  49 }  50 }  51 **return** **true**;  52 }  53 }  **课后题6.28**  01 **package** sdnu.wry.demo;  02 **public class** Homework {  03 **public static void** **main**(String[] args) {  04 *// int count=0;*  05 System.out.**print**("p\t2^p-1\n");  06 **for**(**int** p = 0;p<=31;p++){  07 **if**(**isPrime**(**Mason**(p))){  08 System.out.**print**(p+"\t"+**Mason**(p)+"\n");  09 }  10 }  11 }  12 *//判断是否梅森数，即2^p-1*  13 **public static long** **Mason**(**int** p){  14 **return** (**long**)(Math.**pow**(2,p)-1);  15 }  16 *//判断转置*  17 **public static boolean** **isReverse**(**long** num){  18 String num\_str = num+"";  19 StringBuffer buffer = **new** **StringBuffer**(num\_str);  20 String num\_rev\_str = buffer.**reverse**().**toString**();  21 **int** num\_rev\_int = Integer.**parseInt**(num\_rev\_str);  22 **return** num\_rev\_int==num;  23 }  24 *//转置*  25 **public static long** **Reverse**(**long** num){  26 String num\_str = num+"";  27 StringBuffer buffer = **new** **StringBuffer**(num\_str);  28 String num\_rev\_str = buffer.**reverse**().**toString**();  29 **int** num\_rev\_int = Integer.**parseInt**(num\_rev\_str);  30 **return** num\_rev\_int;  31 }  32 *//判断是素数*  33 **public static boolean** **isPrime**(**long** num){  34 **if**(num<=3){  35 **return** num>1;  36 }  37 **if**(num%6!=1 && num%6!=5){  38 **return** **false**;  39 }  40 **int** sqrt = (**int**)Math.**sqrt**(num);  41 **for** (**int** i = 5;i<=sqrt;i+=6){  42 **if**(num%i==0 || num%(i+2)==0){  43 **return** **false**;  44 }  45 }  46 **return** **true**;  47 }  48 }  **课后题6.30**  01 **package** sdnu.wry.demo;  02 **public class** Homework {  03 **public static void** **main**(String[] args) {  04 **int** point1,point2;  05 **int** result = 0;  06  07 **for**(**int** round=1;;round++){  08 point1 = (**int**)(Math.**random**()\*6+1);  09 point2 = (**int**)(Math.**random**()\*6+1);  10 result = **game**(point1,point2,round,result);  11 **if**(result==0){  12 System.out.**println**(point1+"+"+point2+"="+(point1+point2));  13 System.out.**print**("lose");  14 **break**;  15 }  16 **else if**(result==13){  17 System.out.**println**(point1+"+"+point2+"="+(point1+point2));  18 System.out.**print**("win");  19 **break**;  20 }  21 **else** {  22 System.out.**println**(point1+"+"+point2+"="+(point1+point2));  23 }  24 }  25  26 }  27  28 **public static int** **game**(**int** point1,**int** point2,**int** round,**int** last\_result){  29 **int** sum = point1+point2;  30 **if**(round==1){  31 **if**(sum==2||sum==3||sum==12){  32 **return** 0;*//输了*  33 }  34 **else if**(sum==7||sum==11) {  35 **return** 13;*//赢了*  36 }  37 **else** {  38 **return** sum;*//进行下一轮游戏*  39 }  40 }  41 **else if**(round>=2){  42 **if**(sum==7){  43 **return** 0;  44 }  45 **else if**(sum==last\_result){  46 **return** 13;  47 }  48 **else**{  49 **return** sum;  50 }  51 }  52 **return** sum;  53 }  54 }  55  **课后题6.35**  01 **package** sdnu.wry.demo;  02 **public class** Homework {  03 **public static void** **main**(String[] args) {  04 System.out.**println**(5.5+"边长的五边形面积为"+**area**(5.5));  05 }  06 **public static double** **area**(**double** side){  07 **return** (5\*side\*side)/(4\*Math.**tan**(Math.PI/5));  08 }  09 }  10  **课后题6.38**  01 **package** sdnu.wry.demo;  02 **public class** Homework {  03 **public static void** **main**(String[] args) {  04 **for**(**int** i = 1;i<=100;i++){  05 System.out.**print**(**RandomCharacter**('A','Z'));  06 **if**(i%10==0){  07 System.out.**println**("");  08 }  09 }  10 **for**(**int** i = 1;i<=100;i++){  11 System.out.**print**(**RandomCharacter**('0','9'));  12 **if**(i%10==0){  13 System.out.**println**("");  14 }  15 }  16  17  18 }  19 **public static char** **RandomCharacter**(**char** start,**char** end){  20 **char** a = (**char**)(Math.**random**()\*((**int**)end-(**int**)start+1)+(**int**)start);  21 **return** a;  22 }  23 }  24  **课后题6.39**  01 **package** sdnu.wry.demo;  02 **public class** Homework {  03 **public static void** **main**(String[] args) {  04 **double** x0=1,y0=1,x1=2,y1=2,x2=3,y2=3;  05 **if**(**leftOfTheLine**(x0,y0,x1,y2,x2,y2)){  06 System.out.**println**("在线的左边");  07 }  08 **else if**(**onTheSameLine**(x0,y0,x1,y1,x2,y2)){  09 System.out.**println**("在线上");  10 }  11 **else if**(**onTheLineSegment**(x0,y0,x1,y1,x2,y2)){  12 System.out.**println**("在线的延长线上");  13 }  14 **else**{  15 System.out.**println**("在线的右边");  16 }  17  18 }  19  20 **public static boolean** **leftOfTheLine**(**double** x0,**double** y0,**double** x1,**double** y1,**double** x2,**double** y2){  21 **return** (((x1-x0)\*(y2-y0)-(x2-x0)\*(y1-y0))>0);  22 }  23  24 **public static boolean** **onTheSameLine**(**double** x0,**double** y0,**double** x1,**double** y1,**double** x2,**double** y2){  25  26 **if**(((x0<=x2)&&(x2<=x1))||(x0>=x2)&&(x2>=x1)){  27 **return** ((x1-x0)\*(y2-y0)-(x2-x0)\*(y1-y0))==0;  28 }  29 **return** **false**;  30 }  31  32 **public static boolean** **onTheLineSegment**(**double** x0,**double** y0,**double** x1,**double** y1,**double** x2,**double** y2){  33  34 **if**(!(((x0<=x2)&&(x2<=x1))||(x0>=x2)&&(x2>=x1))){  35 **return** ((x1-x0)\*(y2-y0)-(x2-x0)\*(y1-y0))==0;  36 }  37 **return** **false**;  38 }  39  40 }  41 |
| 调 试 过 程 及 实 验 结  果 | **课后题6.23**    **课后题6.24**    **课后题6.25**    **课后题6.26**    **课后题6.27**    **课后题6.28**    **课后题6.30**    **课后题6.35**    **课后题6.38**    **课后题6.39** |
| 总 结 | **课后题6.23**  String转String[ ]，for循环判断  **课后题6.24**  通过调用Date包实现日期获取，通过SimpleDateFormat实现格式化输出  **课后题6.25**  简单的计算  **课后题6.26**  通过调用回文数和素数方法，返回布尔值进行判断  **课后题6.27**  通过StringBuffer类下的reverse（）方法实现转置  **课后题6.30**  简单的if-else判断  **课后题6.35**  简单的计算  **课后题6.38**  将char转为int，random计算区间，输出随机int转char打印  **课后题6.39**  简单的方法调用 |
| 附 录 | Github源码地址：<https://github.com/RuYunW/JavaHomework/tree/master/实验8> |