

第一题:

1、

```
city = c("Beijing","Chengdu","Haerbin","Guangzhou");
tem = c(27,32,21,33)
DF = data.frame(city,tem);
for (i in 1:length(tem))
{
  if (DF[i,2]>30)
  {
    print(DF[i,1])
  }
}
```

	city	tem
1	Beijing	27
2	Chengdu	32
3	Haerbin	21
4	Guangzhou	33

```
> city = c("Beijing","Chengdu","Haerbin","Guangzhou");
> tem = c(27,32,21,33)
> DF = data.frame(city,tem);
> for (i in 1:length(tem))
+ {
+   if (DF[i,2]>30)
+   {
+     print(DF[i,1])
+   }
+ }
[1] Chengdu
Levels: Beijing Chengdu Guangzhou Haerbin
[1] Guangzhou
Levels: Beijing Chengdu Guangzhou Haerbin
```

2、

```
city = "beijing";
tem = 27
if (tem <= 25)
{
  print(FALSE)
}
if (tem > 25)
{
  print(TRUE)
}
is_hot = TRUE;
```

```
> city = "beijing";
> tem = 27
> if (tem <= 25)
+ {
+   print(FALSE)
+ }
> if (tem > 25)
+ {
+   print(TRUE)
+ }
[1] TRUE
> is_hot = TRUE;
```

3、

```
tem = c(27,32,21,33);
tem_mean = mean(tem);
```

```
> tem = c(27,32,21,33);
> tem_mean = mean(tem);
> tem_mean
[1] 28.25
```

第二题、

1、

```
#第二题#
names = c("qym","sx","chh","cbl","cy","jxj","czz");
place = c("普吉岛","马尔代夫","苏州","扬州","九寨沟","西藏","香格里拉");
partners = c(5,6,7,8,9,2,3);
days = c(9,8,7,8,6,5,8);
basic_message = data.frame(names,place,partners,days);
```

```
> names = c("qym","sx","chh","cbl","cy","jxj","czz");
> place = c("普吉岛","马尔代夫","苏州","扬州","九寨沟","西藏","香格里拉");
> partners = c(5,6,7,8,9,2,3);
> days = c(9,8,7,8,6,5,8);
> basic_message = data.frame(names,place,partners,days);
> basic_message
  names place partners days
1  qym  普吉岛         5    9
2   sx  马尔代夫        6    8
3  chh   苏州          7    7
4  cbl   扬州          8    8
5   cy  九寨沟          9    6
6  jxj   西藏          2    5
7  czz  香格里拉        3    8
> view(basic_message)
```

	names	place	partners	days
1	qym	普吉岛	5	9
2	sx	马尔代夫	6	8
3	chh	苏州	7	7
4	cbl	扬州	8	8
5	cy	九寨沟	9	6
6	jxj	西藏	2	5
7	czz	香格里拉	3	8

2、

```
where = c("out","out","in","in","in","in","in");
"in"=c(1);"out"=c(2);
WHE = c(2,2,1,1,1,1,1);
basic_message1 = cbind(basic_message,WHE);

where = c("out","out","in","in","in","in","in")
"in"=c(1);"out"=c(2);
WHE = c(2,2,1,1,1,1,1);
basic_message1 = cbind(basic_message,WHE);
view(basic_message1)
```

	names	place	partners	days	WHE
1	qym	普吉岛	5	9	2
2	sx	马尔代夫	6	8	2
3	chh	苏州	7	7	1
4	cbl	扬州	8	8	1
5	cy	九寨沟	9	6	1
6	jxj	西藏	2	5	1
7	czz	香格里拉	3	8	1

3、

```
partners_mean = mean(partners);
days_median = median(days);
DF_save = basic_message1[basic_message1$WHE==1&
basic_message1$partners>5.714286&basic_message1$days>=8,];

> partners_mean = mean(partners);
> partners_mean
[1] 5.714286
> days_median = median(days);
> days_median
[1] 8
> DF_save = basic_message1[basic_message1$WHE==1&
+ basic_message1$partners>5.714286&basic_message1$days>=8,];
> DF_save
  names place partners days WHE
4   cbl  扬州         8    8   1
```

第三题、

1、

```
x = c(170,160,180);
name = c("a","b","c");
data = data.frame(name,x);
x_max = max(x);
data_new = data[data$x==x_max,];
> name = c("a","b","c");
> x = c(170,160,180);
> name = c("a","b","c");
> data = data.frame(name,x);
> x_max = max(x);
> data_new = data[data$x==x_max,];
> data_new
  name    x
3    c 180
```

2、

```
matrix1 = matrix(c(1,1,1,1),nrow = 2,ncol = 2);
matrix2 = matrix(c(2,2,2,2),nrow = 2,ncol = 2);
A = matrix(c(1,1,1,1,2,2,2,2),nrow = 4,ncol = 2,byrow = TRUE);
B = t(A);
result1 = A**B;
result2 = B**A;
```

```

> matrix1 = matrix(c(1,1,1,1),nrow = 2,ncol = 2);
> matrix1
      [,1] [,2]
[1,]    1    1
[2,]    1    1
> matrix2 = matrix(c(2,2,2,2),nrow = 2,ncol = 2);
> matrix2
      [,1] [,2]
[1,]    2    2
[2,]    2    2

> A = matrix(c(1,1,1,1,2,2,2,2),nrow = 4,ncol = 2,byrow = TRUE);
> A
      [,1] [,2]
[1,]    1    1
[2,]    1    1
[3,]    2    2
[4,]    2    2
> B = t(A);
> B
      [,1] [,2] [,3] [,4]
[1,]    1    1    2    2
[2,]    1    1    2    2

> result1 = A%%B;
> result1
      [,1] [,2] [,3] [,4]
[1,]    2    2    4    4
[2,]    2    2    4    4
[3,]    4    4    8    8
[4,]    4    4    8    8
> result2 = B%%A;
> result2
      [,1] [,2]
[1,]   10   10
[2,]   10   10

```

第四题、

1、

```

a = matrix(c(1,2,3,4),nrow = 2,ncol = 2);
b = matrix(c(5,6,7,8),nrow = 2,ncol = 2);
result = a+b;

> a = matrix(c(1,2,3,4),nrow = 2,ncol = 2);
> a
      [,1] [,2]
[1,]    1    3
[2,]    2    4
> b = matrix(c(5,6,7,8),nrow = 2,ncol = 2);
> b
      [,1] [,2]
[1,]    5    7
[2,]    6    8
> result = a+b;
> result
      [,1] [,2]
[1,]    6   10
[2,]    8   12

```

2、

```

name = c("xiaoming","xiaohong","xiaomei","xiaoli","xiaojun");
chinese = c(93,83,87,89,78);
math = c(98,99,90,92,96);
english = c(95,89,94,88,90);
Data1 = data.frame(name,chinese,math,english);
matrix_chinese = matrix(c(93,83,87,89,78),ncol = 1);
matrix_math = matrix(c(98,99,90,92,96),ncol = 1);
matrix_english = matrix(c(95,89,94,88,90),ncol = 1);
summary = matrix_chinese+matrix_math+matrix_english;
Data2 = data.frame(summary);
Data_new = cbind(Data1,Data2);

> name = c("xiaoming","xiaohong","xiaomei","xiaoli","xiaojun");
> chinese = c(93,83,87,89,78);
> math = c(98,99,90,92,96);
> english = c(95,89,94,88,90);
> Data1 = data.frame(name,chinese,math,english);
> Data1
  name chinese math english
1 xiaoming     93   98     95
2 xiaohong     83   99     89
3 xiaomei      87   90     94
4 xiaoli       89   92     88
5 xiaojun      78   96     90

```

```

> matrix_chinese = matrix(c(93,83,87,89,78),ncol = 1);
> matrix_chinese
      [,1]
[1,]    93
[2,]    83
[3,]    87
[4,]    89
[5,]    78
> matrix_math = matrix(c(98,99,90,92,96),ncol = 1);
> matrix_math
      [,1]
[1,]    98
[2,]    99
[3,]    90
[4,]    92
[5,]    96
> matrix_english = matrix(c(95,89,94,88,90),ncol = 1);
> matrix_english
      [,1]
[1,]    95
[2,]    89
[3,]    94
[4,]    88
[5,]    90
> summary = matrix_chinese+matrix_math+matrix_english;
> summary
      [,1]
[1,]   286
[2,]   271
[3,]   271
[4,]   269
[5,]   264

```

```

> Data2 = data.frame(summary);
> Data2
  summary
1      286
2      271
3      271
4      269
5      264
> Data_new = cbind(Data1,Data2);
> Data_new
  name chinese math english summary
1 xiaoming      93   98      95      286
2 xiaohong      83   99      89      271
3 xiaomei       87   90      94      271
4 xiaoli        89   92      88      269
5 xiaojun       78   96      90      264

```

3、

```

#加入xiaoying的成绩#
#xiaoying总成绩#
summary = 85+95+95;
#xiaoying的名字#
name = c("xiaoying");
#xiaoying的语文成绩#
chinese = c(85);
#xiaoying的数学成绩#
math = c(95);
#xiaoying的英语成绩#
english = c(95);
Data3 = data.frame(name,chinese,math,english,summary);
Data_new_1 = rbind(Data_new,Data3);

> #加入xiaoying的成绩#
> #xiaoying总成绩#
> summary = 85+95+95;
> #xiaoying的名字#
> name = c("xiaoying");
> #xiaoying的语文成绩#
> chinese = c(85);
> #xiaoying的数学成绩#
> math = c(95);
> #xiaoying的英语成绩#
> english = c(95);

> Data3 = data.frame(name,chinese,math,english,summary);
> Data3
  name chinese math english summary
1 xiaoying      85   95      95      275
> Data_new_1 = rbind(Data_new,Data3);
> Data_new_1
  name chinese math english summary
1 xiaoming      93   98      95      286
2 xiaohong      83   99      89      271
3 xiaomei       87   90      94      271
4 xiaoli        89   92      88      269
5 xiaojun       78   96      90      264
6 xiaoying      85   95      95      275

```

第五题、

1、

```
scores = seq(60,99,4);
> scores = seq(60,99,4);
> scores
[1] 60 64 68 72 76 80 84 88 92 96
```

2、

```
scores = seq(60,99,10);
years = c(2009,2010,2011,2012);
xiaogao_data0 = data.frame(years,scores);

> scores = seq(60,99,10);
> scores
[1] 60 70 80 90
> years = c(2009,2010,2011,2012);
> years
[1] 2009 2010 2011 2012
> xiaogao_data0 = data.frame(years,scores);
> xiaogao_data0
  years scores
1  2009     60
2  2010     70
3  2011     80
4  2012     90

#新的成绩和年份#
scores = c(95,90,91);
years = c(2013,2014,2015);
xiaogao_data = data.frame(years,scores);
xiaogao_data_new = rbind(xiaogao_data0,xiaogao_data);

> scores = c(95,90,91);
> years = c(2013,2014,2015);
> xiaogao_data = data.frame(years,scores);
> xiaogao_data
  years scores
1  2013     95
2  2014     90
3  2015     91
> xiaogao_data_new = rbind(xiaogao_data0,xiaogao_data);
> xiaogao_data_new
  years scores
1  2009     60
2  2010     70
3  2011     80
4  2012     90
5  2013     95
6  2014     90
7  2015     91
```

3、这道题存在疑惑没能解决：

```
for(i in 1:length(xiaogao_data_new$scores))
{
  if ((xiaogao_data_new[i,2])<(xiaogao_data_new[(i-1),2]))
  {
    print(xiaogao_data_new[i,1])
  }
}
year = xiaogao_data_new[i,1];
```

```

> for(i in 1:length(xiaogao_data_new$scores))
+ {
+   if ((xiaogao_data_new[i,2])<(xiaogao_data_new[(i-1),2]))
+   {
+     print(xiaogao_data_new[i,1])
+   }
+ }
Error in if ((xiaogao_data_new[i, 2]) < (xiaogao_data_new[(i - 1), 2])) { :
  argument is of length zero
> year = xiaogao_data_new[i,1];
> year
[1] 2009

```

年份，理应为 2015 年；

第六题、

1、 这里一开始我了解到 scan()这个函数可以通过手动输入的方式输入数字，本来想举一反三，想到输入汉字应该也行，但是试完之后是不行的(/(T o T)/~~)应该是对该方法没有了解全面，所以还是用了最基本的方法：

```

#第六题#
names = c("查德·勒克洛斯","拉斯科","德怀尔","孙杨","萩野公介",
          "比德尔曼","哈斯","詹姆斯·盖伊");
countrys = c("南非","俄罗斯联邦","美国","中国","日本","德国","美国","英国");
DF1 = data.frame(names,countrys);

```

```

> names = c("查德·勒克洛斯","拉斯科","德怀尔","孙杨","萩野公介",
+           "比德尔曼","哈斯","詹姆斯·盖伊");
> countrys = c("南非","俄罗斯联邦","美国","中国","日本","德国","美国","英国");
> DF1 = data.frame(names,countrys);
> DF1

```

	names	countrys
1	查德·勒克洛斯	南非
2	拉斯科	俄罗斯联邦
3	德怀尔	美国
4	孙杨	中国
5	萩野公介	日本
6	比德尔曼	德国
7	哈斯	美国
8	詹姆斯·盖伊	英国

2、

```

#比赛时间需要化成秒数计算#
#时间分别为#
105.20/105.91/105.23/104.65/105.90/105.84/105.58/105.49
time = c(105.20,105.91,105.23,104.65,105.90,105.84,105.58,105.49);
DF2 = cbind(DF1,time);
for(i in 1:length(DF2$time))
{
  if (DF2[i,3]==min(time))
  {
    print(DF2[i,1])
    print(DF2[i,2])
  }
}

```



```

> #比赛时间需要化成秒数计算#
> #时间分别为#
> 105.20/105.91/105.23/104.65/105.90/105.84/105.58/105.49
[1] 7.225389e-13
> time = c(105.20,105.91,105.23,104.65,105.90,105.84,105.58,105.49);
> DF2 = cbind(DF1,time);
> DF2
      names    countrys    time
1 查德·勒克洛斯      南非 105.20
2      拉斯科 俄罗斯联邦 105.91
3      德怀尔      美国 105.23
4      孙杨      中国 104.65
5      萩野公介      日本 105.90
6      比德尔曼      德国 105.84
7      哈斯      美国 105.58
8 詹姆斯·盖伊      英国 105.49

> for(i in 1:length(DF2$time))
+ {
+   if (DF2[i,3]==min(time))
+   {
+     print(DF2[i,1])
+     print(DF2[i,2])
+   }
+ }
[1] 孙杨
Levels: 比德尔曼 查德·勒克洛斯 德怀尔 哈斯 拉斯科 萩野公介 孙杨 詹姆斯·盖伊
[1] 中国
Levels: 德国 俄罗斯联邦 美国 南非 日本 英国 中国

```

所以：冠军是中国选手孙杨！

3、

```

rtime = c(0.63,0.66,0.65,0.76,0.65,0.84,0.76,0.66);
DF3 = cbind(DF2,rtime);
matrix_rtime = matrix(c(0.63,0.66,0.65,0.76,0.65,0.84,0.76,0.66),ncol=1);
matrix_time = matrix(c(105.20,105.91,105.23,104.65,105.90,
                        105.84,105.58,105.49),ncol=1);
time_d = matrix_time-matrix_rtime;
DF = cbind(DF3,time_d);
for (i in 1:length(time_d))
{
  if(DF[i,5]==min(time_d))
  {
    print(DF[i,1])
    print(DF[i,2])
  }
}

```

```

> rtime = c(0.63,0.66,0.65,0.76,0.65,0.84,0.76,0.66);
> DF3 = cbind(DF2,rtime);
> DF3
      names  countrys  time rtime
1 查德·勒克斯 南非 105.20 0.63
2      拉斯科 俄罗斯联邦 105.91 0.66
3      德怀尔 美国 105.23 0.65
4      孙杨 中国 104.65 0.76
5      萩野公介 日本 105.90 0.65
6      比德尔曼 德国 105.84 0.84
7      哈斯 美国 105.58 0.76
8 詹姆斯·盖伊 英国 105.49 0.66
> matrix_rtime = matrix(c(0.63,0.66,0.65,0.76,0.65,0.84,0.76,0.66),ncol=1);
> matrix_rtime
      [,1]
[1,] 0.63
[2,] 0.66
[3,] 0.65
[4,] 0.76
[5,] 0.65
[6,] 0.84
[7,] 0.76
[8,] 0.66
> matrix_time = matrix(c(105.20,105.91,105.23,104.65,105.90,
+                        105.84,105.58,105.49),ncol=1);
> matrix_time
      [,1]
[1,] 105.20
[2,] 105.91
[3,] 105.23
[4,] 104.65
[5,] 105.90
[6,] 105.84
[7,] 105.58
[8,] 105.49

```

```

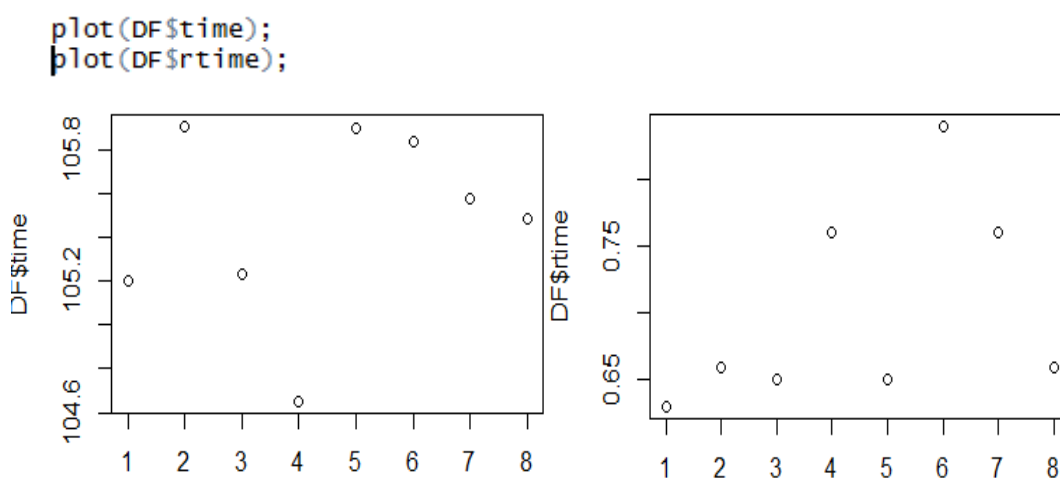
> time_d = matrix_time-matrix_rtime;
> time_d
      [,1]
[1,] 104.57
[2,] 105.25
[3,] 104.58
[4,] 103.89
[5,] 105.25
[6,] 105.00
[7,] 104.82
[8,] 104.83
> DF = cbind(DF3,time_d);
> DF
      names      countrys      time rtime time_d
1 查德·勒克洛斯      南非 105.20  0.63 104.57
2      拉斯科 俄罗斯联邦 105.91  0.66 105.25
3      德怀尔      美国 105.23  0.65 104.58
4      孙杨      中国 104.65  0.76 103.89
5      萩野公介      日本 105.90  0.65 105.25
6      比德尔曼      德国 105.84  0.84 105.00
7      哈斯      美国 105.58  0.76 104.82
8 詹姆斯·盖伊      英国 105.49  0.66 104.83

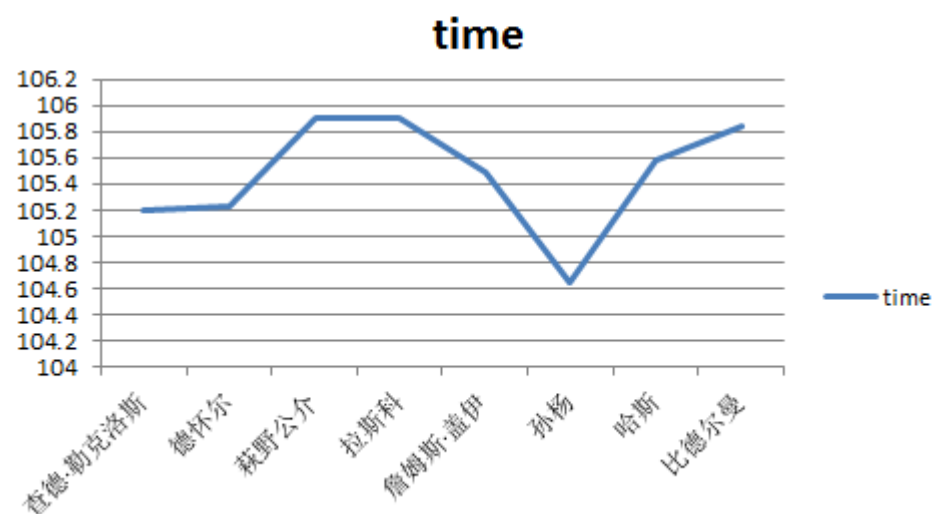
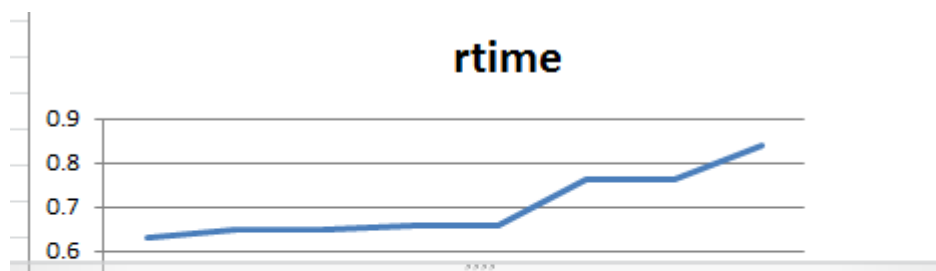
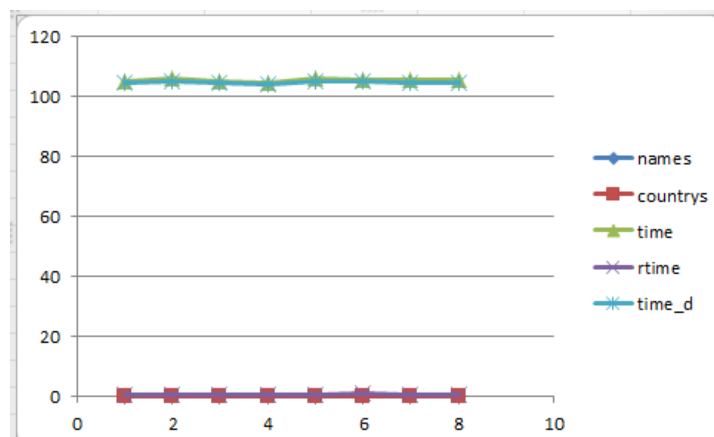
> for (i in 1:length(time_d))
+ {
+   if(DF[i,5]==min(time_d))
+   {
+     print(DF[i,1])
+     print(DF[i,2])
+   }
+ }
[1] 孙杨
Levels: 比德尔曼 查德·勒克洛斯 德怀尔 哈斯 拉斯科 萩野公介 孙杨 詹姆斯·盖伊
[1] 中国
Levels: 德国 俄罗斯联邦 美国 南非 日本 英国 中国

```

毋庸置疑，游得最快的选手来自中国，people republic of China, 孙杨！

接下来比较反应时对成绩的影响情况：





经上述对比大概可以看出来，其他选手基本上是成绩与反应时成正比，反应慢，成绩也就慢些，但是孙杨和盖伊确恰恰相反，不愧是最有实力的两名选手！

第七题、

1、首先的步骤：

```
name = c("xiaohong","xiaoming","xiaolv");
tag1 = c("租车","聊天","美图");tag2 = c("美图","聊天","租车");
tag3 = c("聊天","美图","美图");tag4 = c("租车","租车","美食");
tag5 = c("拍照","美食","聊天");
DATA = data.frame(name,tag1,tag2,tag3,tag4,tag5);
```

```

> name = c("xiaohong","xiaoming","xiaolv");
> tag1 = c("租车","聊天","美图");tag2 = c("美图","聊天","租车");
> tag3 = c("聊天","美图","美图");tag4 = c("租车","租车","美食");
> tag5 = c("拍照","美食","聊天");
> DATA = data.frame(name,tag1,tag2,tag3,tag4,tag5);
> DATA
  name tag1 tag2 tag3 tag4 tag5
1 xiaohong 租车 美图 聊天 租车 拍照
2 xiaoming 聊天 聊天 美图 租车 美食
3 xiaolv 美图 租车 美图 美食 聊天

```

接下来精确查找试了很多种方法，好像都不太行：
首先是行不通的两种：

```

#行不通1#
zuche = DATA[DATA$tag5%in%tag1,];
#行不通2#
for ((i in 1:3)&(j in 1:4))
{
  if(DATA[i,j]=="租车")
  {
    print(DATA[i,j])
  }
}

```

然后是稍微有点意思的：

```

#租车#
zuche2 = DATA[grep("^租车$",DATA$tag2),];
zuche3 = DATA[grep("^租车$",DATA$tag3),];
zuche4 = DATA[grep("^租车$",DATA$tag4),];
zuche5 = DATA[grep("^租车$",DATA$tag5),];

> zuche2 = DATA[grep("^租车$",DATA$tag2),];
> zuche2
  name tag1 tag2 tag3 tag4 tag5
3 xiaolv 美图 租车 美图 美食 聊天
> zuche3 = DATA[grep("^租车$",DATA$tag3),];
> zuche3
[1] name tag1 tag2 tag3 tag4 tag5
<0 行> (或0-长度的row.names)
> zuche4 = DATA[grep("^租车$",DATA$tag4),];
> zuche4
  name tag1 tag2 tag3 tag4 tag5
1 xiaohong 租车 美图 聊天 租车 拍照
2 xiaoming 聊天 聊天 美图 租车 美食
> zuche5 = DATA[grep("^租车$",DATA$tag5),];
> zuche5
[1] name tag1 tag2 tag3 tag4 tag5
<0 行> (或0-长度的row.names)

#聊天#
liaotian2 = DATA[grep("^聊天$",DATA$tag2),];
liaotian3 = DATA[grep("^聊天$",DATA$tag3),];
liaotian4 = DATA[grep("^聊天$",DATA$tag4),];
liaotian5 = DATA[grep("^聊天$",DATA$tag5),];

```

```

> liaotian2 = DATA[grepl("^聊天$",DATA$tag2),];
> liaotian2
      name tag1 tag2 tag3 tag4 tag5
2 xiaoming 聊天 聊天 美图 租车 美食
> liaotian3 = DATA[grepl("^聊天$",DATA$tag3),];
> liaotian3
      name tag1 tag2 tag3 tag4 tag5
1 xiaohong 租车 美图 聊天 租车 拍照
> liaotian4 = DATA[grepl("^聊天$",DATA$tag4),];
> liaotian4
[1] name tag1 tag2 tag3 tag4 tag5
<0 行> (或0-长度的row.names)
> liaotian5 = DATA[grepl("^聊天$",DATA$tag5),];
> liaotian5
      name tag1 tag2 tag3 tag4 tag5
3 xiaolv 美图 租车 美图 美食 聊天

#美图#
meitu2 = DATA[grepl("^美图$",DATA$tag2),];
meitu3 = DATA[grepl("^美图$",DATA$tag3),];
meitu4 = DATA[grepl("^美图$",DATA$tag4),];
meitu5 = DATA[grepl("^美图$",DATA$tag5),];

> meitu2 = DATA[grepl("^美图$",DATA$tag2),];
> meitu2
      name tag1 tag2 tag3 tag4 tag5
1 xiaohong 租车 美图 聊天 租车 拍照
> meitu3 = DATA[grepl("^美图$",DATA$tag3),];
> meitu3
      name tag1 tag2 tag3 tag4 tag5
2 xiaoming 聊天 聊天 美图 租车 美食
3  xiaolv 美图 租车 美图 美食 聊天
> meitu4 = DATA[grepl("^美图$",DATA$tag4),];
> meitu4
[1] name tag1 tag2 tag3 tag4 tag5
<0 行> (或0-长度的row.names)
> meitu5 = DATA[grepl("^美图$",DATA$tag5),];
> meitu5
[1] name tag1 tag2 tag3 tag4 tag5
<0 行> (或0-长度的row.names)

```

所以，结果如上述。