

```
> summary(train)
```

```
    ACTION    RESOURCE    MGR_ID
```

```
Min. :0.0000 Min. : 0 Min. : 25
```

```
1st Qu.:1.0000 1st Qu.: 20299 1st Qu.: 4566
```

```
Median:1.0000 Median : 35376 Median : 13545
```

```
Mean :0.9421 Mean : 42924 Mean : 25989
```

```
3rd Qu.:1.0000 3rd Qu.: 74189 3rd Qu.: 42034
```

```
Max. :1.0000 Max. :312153 Max. :311696
```

```
ROLE_ROLLUP_1 ROLE_ROLLUP_2 ROLE_DEPTNAME
```

```
Min. : 4292 Min. : 23779 Min. : 4674
```

```
1st Qu.:117961 1st Qu.:118102 1st Qu.:118395
```

```
Median:117961 Median:118300 Median:118921
```

```
Mean :116953 Mean :118302 Mean :118913
```

```
3rd Qu.:117961 3rd Qu.:118386 3rd Qu.:120535
```

```
Max. :311178 Max. :286791 Max. :286792
```

```
ROLE_TITLE ROLE_FAMILY_DESC ROLE_FAMILY
```

```
Min. :117879 Min. : 4673 Min. : 3130
```

```
1st Qu.:118274 1st Qu.:117906 1st Qu.:118363
```

```
Median:118568 Median:128696 Median:119006
```

```
Mean :125916 Mean :170178 Mean :183703
```

```
3rd Qu.:120006 3rd Qu.:235280 3rd Qu.:290919
```

```
Max. :311867 Max. :311867 Max. :308574
```

```
ROLE_CODE
```

```
Min. :117880
```

```
1st Qu.:118232
```

Median :118570

Mean :119789

3rd Qu.:119348

Max. :270691

> View(train)

> train.features = train

> train.features\$ACTION<-NULL

> summary(train.features)

RESOURCE MGR_ID ROLE_ROLLUP_1

Min. : 0 Min. : 25 Min. : 4292

1st Qu.: 20299 1st Qu.: 4566 1st Qu.:117961

Median : 35376 Median : 13545 Median :117961

Mean : 42924 Mean : 25989 Mean :116953

3rd Qu.: 74189 3rd Qu.: 42034 3rd Qu.:117961

Max. :312153 Max. :311696 Max. :311178

ROLE_ROLLUP_2 ROLE_DEPTNAME ROLE_TITLE

Min. : 23779 Min. : 4674 Min. :117879

1st Qu.:118102 1st Qu.:118395 1st Qu.:118274

Median :118300 Median :118921 Median :118568

Mean :118302 Mean :118913 Mean :125916

3rd Qu.:118386 3rd Qu.:120535 3rd Qu.:120006

Max. :286791 Max. :286792 Max. :311867

ROLE_FAMILY_DESC ROLE_FAMILY ROLE_CODE

Min. : 4673 Min. : 3130 Min. :117880

1st Qu.:117906 1st Qu.:118363 1st Qu.:118232

Median :128696 Median :119006 Median :118570

Mean :170178 Mean :183703 Mean :119789

3rd Qu.:235280 3rd Qu.:290919 3rd Qu.:119348

Max. :311867 Max. :308574 Max. :270691

```
> result = kmeans(train.features, 2)
```

```
> result
```

K-means clustering with 2 clusters of sizes 14501, 18268

Cluster means:

	RESOURCE	MGR_ID	ROLE_ROLLUP_1	ROLE_ROLLUP_2
1	43436.38	22053.32	117173.9	118560.3

2	42517.13	29113.03	116777.0	118096.7
---	----------	----------	----------	----------

	ROLE_DEPTNAME	ROLE_TITLE	ROLE_FAMILY_DESC	ROLE_FAMILY
1	119155.2	124615	153406.4	291040.14
2	118720.3	126949	183491.8	98500.33

	ROLE_CODE
1	118707.1
2	120648.6

Clustering vector:

```
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Within cluster sum of squares by cluster:

[1] 1.003076e+14 2.109719e+14

(between_SS / total_SS = 49.7 %)

Available components:

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[4] "withinss" "tot.withinss" "betweenss"
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[7] "size" "iter" "ifault"
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> summary(result)
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centers	18	-none-	numeric
totss	1	-none-	numeric
withinss	2	-none-	numeric
tot.withinss	1	-none-	numeric
betweenss	1	-none-	numeric
size	2	-none-	numeric
iter	1	-none-	numeric
ifault	1	-none-	numeric