

Home Work 9

```
library(dplyr)

##
## Attaching package: 'dplyr'
## The following objects are masked from 'package:stats':
##
##   filter, lag
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union

library(ggplot2)
library(kernlab)

##
## Attaching package: 'kernlab'
## The following object is masked from 'package:ggplot2':
##
##   alpha

library(hydroGOF)

## Loading required package: zoo
##
## Attaching package: 'zoo'
## The following objects are masked from 'package:base':
##
##   as.Date, as.Date.numeric

library(gridExtra)

##
## Attaching package: 'gridExtra'
## The following object is masked from 'package:dplyr':
##
##   combine

library(e1071)
```

Step 1: Load the Data

```
airdata <- data.frame(airquality)
airdata

##   Ozone Solar.R Wind Temp Month Day
```

## 1	41	190	7.4	67	5	1
## 2	36	118	8.0	72	5	2
## 3	12	149	12.6	74	5	3
## 4	18	313	11.5	62	5	4
## 5	NA	NA	14.3	56	5	5
## 6	28	NA	14.9	66	5	6
## 7	23	299	8.6	65	5	7
## 8	19	99	13.8	59	5	8
## 9	8	19	20.1	61	5	9
## 10	NA	194	8.6	69	5	10
## 11	7	NA	6.9	74	5	11
## 12	16	256	9.7	69	5	12
## 13	11	290	9.2	66	5	13
## 14	14	274	10.9	68	5	14
## 15	18	65	13.2	58	5	15
## 16	14	334	11.5	64	5	16
## 17	34	307	12.0	66	5	17
## 18	6	78	18.4	57	5	18
## 19	30	322	11.5	68	5	19
## 20	11	44	9.7	62	5	20
## 21	1	8	9.7	59	5	21
## 22	11	320	16.6	73	5	22
## 23	4	25	9.7	61	5	23
## 24	32	92	12.0	61	5	24
## 25	NA	66	16.6	57	5	25
## 26	NA	266	14.9	58	5	26
## 27	NA	NA	8.0	57	5	27
## 28	23	13	12.0	67	5	28
## 29	45	252	14.9	81	5	29
## 30	115	223	5.7	79	5	30
## 31	37	279	7.4	76	5	31
## 32	NA	286	8.6	78	6	1
## 33	NA	287	9.7	74	6	2
## 34	NA	242	16.1	67	6	3
## 35	NA	186	9.2	84	6	4
## 36	NA	220	8.6	85	6	5
## 37	NA	264	14.3	79	6	6
## 38	29	127	9.7	82	6	7
## 39	NA	273	6.9	87	6	8
## 40	71	291	13.8	90	6	9
## 41	39	323	11.5	87	6	10
## 42	NA	259	10.9	93	6	11
## 43	NA	250	9.2	92	6	12
## 44	23	148	8.0	82	6	13
## 45	NA	332	13.8	80	6	14
## 46	NA	322	11.5	79	6	15
## 47	21	191	14.9	77	6	16
## 48	37	284	20.7	72	6	17
## 49	20	37	9.2	65	6	18
## 50	12	120	11.5	73	6	19
## 51	13	137	10.3	76	6	20
## 52	NA	150	6.3	77	6	21
## 53	NA	59	1.7	76	6	22
## 54	NA	91	4.6	76	6	23

## 55	NA	250	6.3	76	6	24
## 56	NA	135	8.0	75	6	25
## 57	NA	127	8.0	78	6	26
## 58	NA	47	10.3	73	6	27
## 59	NA	98	11.5	80	6	28
## 60	NA	31	14.9	77	6	29
## 61	NA	138	8.0	83	6	30
## 62	135	269	4.1	84	7	1
## 63	49	248	9.2	85	7	2
## 64	32	236	9.2	81	7	3
## 65	NA	101	10.9	84	7	4
## 66	64	175	4.6	83	7	5
## 67	40	314	10.9	83	7	6
## 68	77	276	5.1	88	7	7
## 69	97	267	6.3	92	7	8
## 70	97	272	5.7	92	7	9
## 71	85	175	7.4	89	7	10
## 72	NA	139	8.6	82	7	11
## 73	10	264	14.3	73	7	12
## 74	27	175	14.9	81	7	13
## 75	NA	291	14.9	91	7	14
## 76	7	48	14.3	80	7	15
## 77	48	260	6.9	81	7	16
## 78	35	274	10.3	82	7	17
## 79	61	285	6.3	84	7	18
## 80	79	187	5.1	87	7	19
## 81	63	220	11.5	85	7	20
## 82	16	7	6.9	74	7	21
## 83	NA	258	9.7	81	7	22
## 84	NA	295	11.5	82	7	23
## 85	80	294	8.6	86	7	24
## 86	108	223	8.0	85	7	25
## 87	20	81	8.6	82	7	26
## 88	52	82	12.0	86	7	27
## 89	82	213	7.4	88	7	28
## 90	50	275	7.4	86	7	29
## 91	64	253	7.4	83	7	30
## 92	59	254	9.2	81	7	31
## 93	39	83	6.9	81	8	1
## 94	9	24	13.8	81	8	2
## 95	16	77	7.4	82	8	3
## 96	78	NA	6.9	86	8	4
## 97	35	NA	7.4	85	8	5
## 98	66	NA	4.6	87	8	6
## 99	122	255	4.0	89	8	7
## 100	89	229	10.3	90	8	8
## 101	110	207	8.0	90	8	9
## 102	NA	222	8.6	92	8	10
## 103	NA	137	11.5	86	8	11
## 104	44	192	11.5	86	8	12
## 105	28	273	11.5	82	8	13
## 106	65	157	9.7	80	8	14
## 107	NA	64	11.5	79	8	15
## 108	22	71	10.3	77	8	16

```
## 109      59      51  6.3  79      8  17
## 110      23     115  7.4  76      8  18
## 111      31     244 10.9  78      8  19
## 112      44     190 10.3  78      8  20
## 113      21     259 15.5  77      8  21
## 114       9      36 14.3  72      8  22
## 115     NA     255 12.6  75      8  23
## 116      45     212  9.7  79      8  24
## 117     168     238  3.4  81      8  25
## 118      73     215  8.0  86      8  26
## 119     NA     153  5.7  88      8  27
## 120      76     203  9.7  97      8  28
## 121     118     225  2.3  94      8  29
## 122      84     237  6.3  96      8  30
## 123      85     188  6.3  94      8  31
## 124      96     167  6.9  91      9   1
## 125      78     197  5.1  92      9   2
## 126      73     183  2.8  93      9   3
## 127      91     189  4.6  93      9   4
## 128      47      95  7.4  87      9   5
## 129      32      92 15.5  84      9   6
## 130      20     252 10.9  80      9   7
## 131      23     220 10.3  78      9   8
## 132      21     230 10.9  75      9   9
## 133      24     259  9.7  73      9  10
## 134      44     236 14.9  81      9  11
## 135      21     259 15.5  76      9  12
## 136      28     238  6.3  77      9  13
## 137       9      24 10.9  71      9  14
## 138      13     112 11.5  71      9  15
## 139      46     237  6.9  78      9  16
## 140      18     224 13.8  67      9  17
## 141      13      27 10.3  76      9  18
## 142      24     238 10.3  68      9  19
## 143      16     201  8.0  82      9  20
## 144      13     238 12.6  64      9  21
## 145      23      14  9.2  71      9  22
## 146      36     139 10.3  81      9  23
## 147       7      49 10.3  69      9  24
## 148      14      20 16.6  63      9  25
## 149      30     193  6.9  70      9  26
## 150     NA     145 13.2  77      9  27
## 151      14     191 14.3  75      9  28
## 152      18     131  8.0  76      9  29
## 153      20     223 11.5  68      9  30
```

Find NAs

```
colnames(airdata)[colSums(is.na(airdata))>0]
```

```
## [1] "Ozone"    "Solar.R"
```

Replace NAs in Ozone with mean value

```
airdata$Ozone[is.na(airdata$Ozone)] <- mean(airdata$Ozone, na.rm=TRUE)
```

Replace NAs in Solar.R with mean value

```
airdata$Solar.R[is.na(airdata$Solar.R)] <- mean(airdata$Solar.R, na.rm=TRUE)
```

View Data

airdata

##	Ozone	Solar.R	Wind	Temp	Month	Day
## 1	41.00000	190.0000	7.4	67	5	1
## 2	36.00000	118.0000	8.0	72	5	2
## 3	12.00000	149.0000	12.6	74	5	3
## 4	18.00000	313.0000	11.5	62	5	4
## 5	42.12931	185.9315	14.3	56	5	5
## 6	28.00000	185.9315	14.9	66	5	6
## 7	23.00000	299.0000	8.6	65	5	7
## 8	19.00000	99.0000	13.8	59	5	8
## 9	8.00000	19.0000	20.1	61	5	9
## 10	42.12931	194.0000	8.6	69	5	10
## 11	7.00000	185.9315	6.9	74	5	11
## 12	16.00000	256.0000	9.7	69	5	12
## 13	11.00000	290.0000	9.2	66	5	13
## 14	14.00000	274.0000	10.9	68	5	14
## 15	18.00000	65.0000	13.2	58	5	15
## 16	14.00000	334.0000	11.5	64	5	16
## 17	34.00000	307.0000	12.0	66	5	17
## 18	6.00000	78.0000	18.4	57	5	18
## 19	30.00000	322.0000	11.5	68	5	19
## 20	11.00000	44.0000	9.7	62	5	20
## 21	1.00000	8.0000	9.7	59	5	21
## 22	11.00000	320.0000	16.6	73	5	22
## 23	4.00000	25.0000	9.7	61	5	23
## 24	32.00000	92.0000	12.0	61	5	24
## 25	42.12931	66.0000	16.6	57	5	25
## 26	42.12931	266.0000	14.9	58	5	26
## 27	42.12931	185.9315	8.0	57	5	27
## 28	23.00000	13.0000	12.0	67	5	28
## 29	45.00000	252.0000	14.9	81	5	29
## 30	115.00000	223.0000	5.7	79	5	30
## 31	37.00000	279.0000	7.4	76	5	31
## 32	42.12931	286.0000	8.6	78	6	1
## 33	42.12931	287.0000	9.7	74	6	2
## 34	42.12931	242.0000	16.1	67	6	3
## 35	42.12931	186.0000	9.2	84	6	4
## 36	42.12931	220.0000	8.6	85	6	5
## 37	42.12931	264.0000	14.3	79	6	6
## 38	29.00000	127.0000	9.7	82	6	7
## 39	42.12931	273.0000	6.9	87	6	8
## 40	71.00000	291.0000	13.8	90	6	9

## 41	39.00000	323.0000	11.5	87	6	10
## 42	42.12931	259.0000	10.9	93	6	11
## 43	42.12931	250.0000	9.2	92	6	12
## 44	23.00000	148.0000	8.0	82	6	13
## 45	42.12931	332.0000	13.8	80	6	14
## 46	42.12931	322.0000	11.5	79	6	15
## 47	21.00000	191.0000	14.9	77	6	16
## 48	37.00000	284.0000	20.7	72	6	17
## 49	20.00000	37.0000	9.2	65	6	18
## 50	12.00000	120.0000	11.5	73	6	19
## 51	13.00000	137.0000	10.3	76	6	20
## 52	42.12931	150.0000	6.3	77	6	21
## 53	42.12931	59.0000	1.7	76	6	22
## 54	42.12931	91.0000	4.6	76	6	23
## 55	42.12931	250.0000	6.3	76	6	24
## 56	42.12931	135.0000	8.0	75	6	25
## 57	42.12931	127.0000	8.0	78	6	26
## 58	42.12931	47.0000	10.3	73	6	27
## 59	42.12931	98.0000	11.5	80	6	28
## 60	42.12931	31.0000	14.9	77	6	29
## 61	42.12931	138.0000	8.0	83	6	30
## 62	135.00000	269.0000	4.1	84	7	1
## 63	49.00000	248.0000	9.2	85	7	2
## 64	32.00000	236.0000	9.2	81	7	3
## 65	42.12931	101.0000	10.9	84	7	4
## 66	64.00000	175.0000	4.6	83	7	5
## 67	40.00000	314.0000	10.9	83	7	6
## 68	77.00000	276.0000	5.1	88	7	7
## 69	97.00000	267.0000	6.3	92	7	8
## 70	97.00000	272.0000	5.7	92	7	9
## 71	85.00000	175.0000	7.4	89	7	10
## 72	42.12931	139.0000	8.6	82	7	11
## 73	10.00000	264.0000	14.3	73	7	12
## 74	27.00000	175.0000	14.9	81	7	13
## 75	42.12931	291.0000	14.9	91	7	14
## 76	7.00000	48.0000	14.3	80	7	15
## 77	48.00000	260.0000	6.9	81	7	16
## 78	35.00000	274.0000	10.3	82	7	17
## 79	61.00000	285.0000	6.3	84	7	18
## 80	79.00000	187.0000	5.1	87	7	19
## 81	63.00000	220.0000	11.5	85	7	20
## 82	16.00000	7.0000	6.9	74	7	21
## 83	42.12931	258.0000	9.7	81	7	22
## 84	42.12931	295.0000	11.5	82	7	23
## 85	80.00000	294.0000	8.6	86	7	24
## 86	108.00000	223.0000	8.0	85	7	25
## 87	20.00000	81.0000	8.6	82	7	26
## 88	52.00000	82.0000	12.0	86	7	27
## 89	82.00000	213.0000	7.4	88	7	28
## 90	50.00000	275.0000	7.4	86	7	29
## 91	64.00000	253.0000	7.4	83	7	30
## 92	59.00000	254.0000	9.2	81	7	31
## 93	39.00000	83.0000	6.9	81	8	1
## 94	9.00000	24.0000	13.8	81	8	2

## 95	16.00000	77.0000	7.4	82	8	3
## 96	78.00000	185.9315	6.9	86	8	4
## 97	35.00000	185.9315	7.4	85	8	5
## 98	66.00000	185.9315	4.6	87	8	6
## 99	122.00000	255.0000	4.0	89	8	7
## 100	89.00000	229.0000	10.3	90	8	8
## 101	110.00000	207.0000	8.0	90	8	9
## 102	42.12931	222.0000	8.6	92	8	10
## 103	42.12931	137.0000	11.5	86	8	11
## 104	44.00000	192.0000	11.5	86	8	12
## 105	28.00000	273.0000	11.5	82	8	13
## 106	65.00000	157.0000	9.7	80	8	14
## 107	42.12931	64.0000	11.5	79	8	15
## 108	22.00000	71.0000	10.3	77	8	16
## 109	59.00000	51.0000	6.3	79	8	17
## 110	23.00000	115.0000	7.4	76	8	18
## 111	31.00000	244.0000	10.9	78	8	19
## 112	44.00000	190.0000	10.3	78	8	20
## 113	21.00000	259.0000	15.5	77	8	21
## 114	9.00000	36.0000	14.3	72	8	22
## 115	42.12931	255.0000	12.6	75	8	23
## 116	45.00000	212.0000	9.7	79	8	24
## 117	168.00000	238.0000	3.4	81	8	25
## 118	73.00000	215.0000	8.0	86	8	26
## 119	42.12931	153.0000	5.7	88	8	27
## 120	76.00000	203.0000	9.7	97	8	28
## 121	118.00000	225.0000	2.3	94	8	29
## 122	84.00000	237.0000	6.3	96	8	30
## 123	85.00000	188.0000	6.3	94	8	31
## 124	96.00000	167.0000	6.9	91	9	1
## 125	78.00000	197.0000	5.1	92	9	2
## 126	73.00000	183.0000	2.8	93	9	3
## 127	91.00000	189.0000	4.6	93	9	4
## 128	47.00000	95.0000	7.4	87	9	5
## 129	32.00000	92.0000	15.5	84	9	6
## 130	20.00000	252.0000	10.9	80	9	7
## 131	23.00000	220.0000	10.3	78	9	8
## 132	21.00000	230.0000	10.9	75	9	9
## 133	24.00000	259.0000	9.7	73	9	10
## 134	44.00000	236.0000	14.9	81	9	11
## 135	21.00000	259.0000	15.5	76	9	12
## 136	28.00000	238.0000	6.3	77	9	13
## 137	9.00000	24.0000	10.9	71	9	14
## 138	13.00000	112.0000	11.5	71	9	15
## 139	46.00000	237.0000	6.9	78	9	16
## 140	18.00000	224.0000	13.8	67	9	17
## 141	13.00000	27.0000	10.3	76	9	18
## 142	24.00000	238.0000	10.3	68	9	19
## 143	16.00000	201.0000	8.0	82	9	20
## 144	13.00000	238.0000	12.6	64	9	21
## 145	23.00000	14.0000	9.2	71	9	22
## 146	36.00000	139.0000	10.3	81	9	23
## 147	7.00000	49.0000	10.3	69	9	24
## 148	14.00000	20.0000	16.6	63	9	25

```
## 149 30.00000 193.0000 6.9 70 9 26
## 150 42.12931 145.0000 13.2 77 9 27
## 151 14.00000 191.0000 14.3 75 9 28
## 152 18.00000 131.0000 8.0 76 9 29
## 153 20.00000 223.0000 11.5 68 9 30
```

Step 2: Create train and test data sets

Create random index

```
dim(airdata)

## [1] 153 6
index <- sample(1:dim(airdata)[1])
length(index)

## [1] 153
```

Split data

```
split <- floor(2*dim(airdata)[1]/3)
split

## [1] 102
```

Create training dataset

```
trainingdata <- airdata[index[1:split],]
dim(trainingdata)

## [1] 102 6
head(trainingdata)

##      Ozone  Solar.R Wind Temp Month Day
## 81 63.00000 220.0000 11.5 85    7 20
## 27 42.12931 185.9315 8.0 57    5 27
## 87 20.00000 81.0000 8.6 82    7 26
## 102 42.12931 222.0000 8.6 92    8 10
## 72 42.12931 139.0000 8.6 82    7 11
## 49 20.00000 37.0000 9.2 65    6 18
```

Create test dataset

```
testdata <- airdata[index[split + 1]:dim(airdata)[1],]
dim(testdata)

## [1] 54 6
head(testdata)

##      Ozone Solar.R Wind Temp Month Day
## 100 89.00000    229 10.3 90    8 8
## 101 110.00000    207 8.0 90    8 9
## 102 42.12931    222 8.6 92    8 10
```



```
## 103 42.12931      137 11.5   86      8 11
## 104 44.00000      192 11.5   86      8 12
## 105 28.00000      273 11.5   82      8 13
```

Step 3: Build a Model using KSVM & visualize the results

Step 3.1: Build a model (using the 'ksvm' function, trying to predict ozone).

```
ksvmmodel <- ksvm(Ozone ~ ., data = trainingdata)
```

Step 3.2 Test model on testing dataset, and compute the Root Mean Squared Error

```
pred <- data.frame(predict(ksvmmodel, testdata))
rmse(pred, testdata$Ozone)
```

```
## predict.ksvmmodel..testdata.
##                               19.53985
```

Step 3.3: Plot the results

```
testdatapred <- cbind(testdata, pred)
colnames(testdatapred)[7] <- 'Pred'
testdatapred$error <- testdatapred$Ozone - testdatapred$Pred
ksvmplot <- ggplot(testdatapred, aes(Temp, Wind, size = error, colour = error)) +
  geom_point()
ksvmplot
```



Step 3.4 Compute models and plot the results for 'svm'

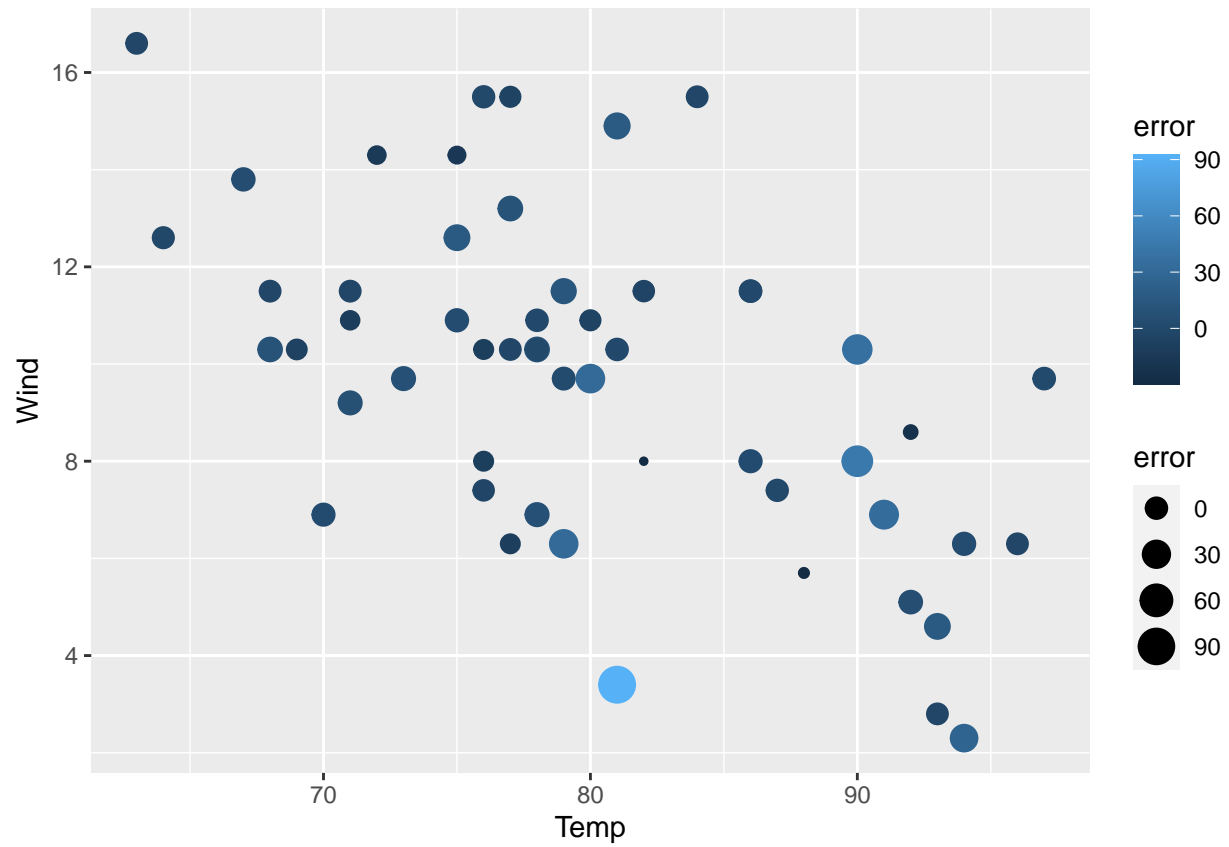
```
svmmodel <- svm(Ozone ~ ., data = trainingdata)
predsvm <- data.frame(predict(svmmodel, testdata))
svmtestdata <- cbind(testdata, predsvm)
colnames(svmtestdata)[7] <- 'Pred'
svmtestdata$error <- svmtestdata$Ozone - svmtestdata$Pred
```

Step 3.4 Compute models and plot the results for 'lm'

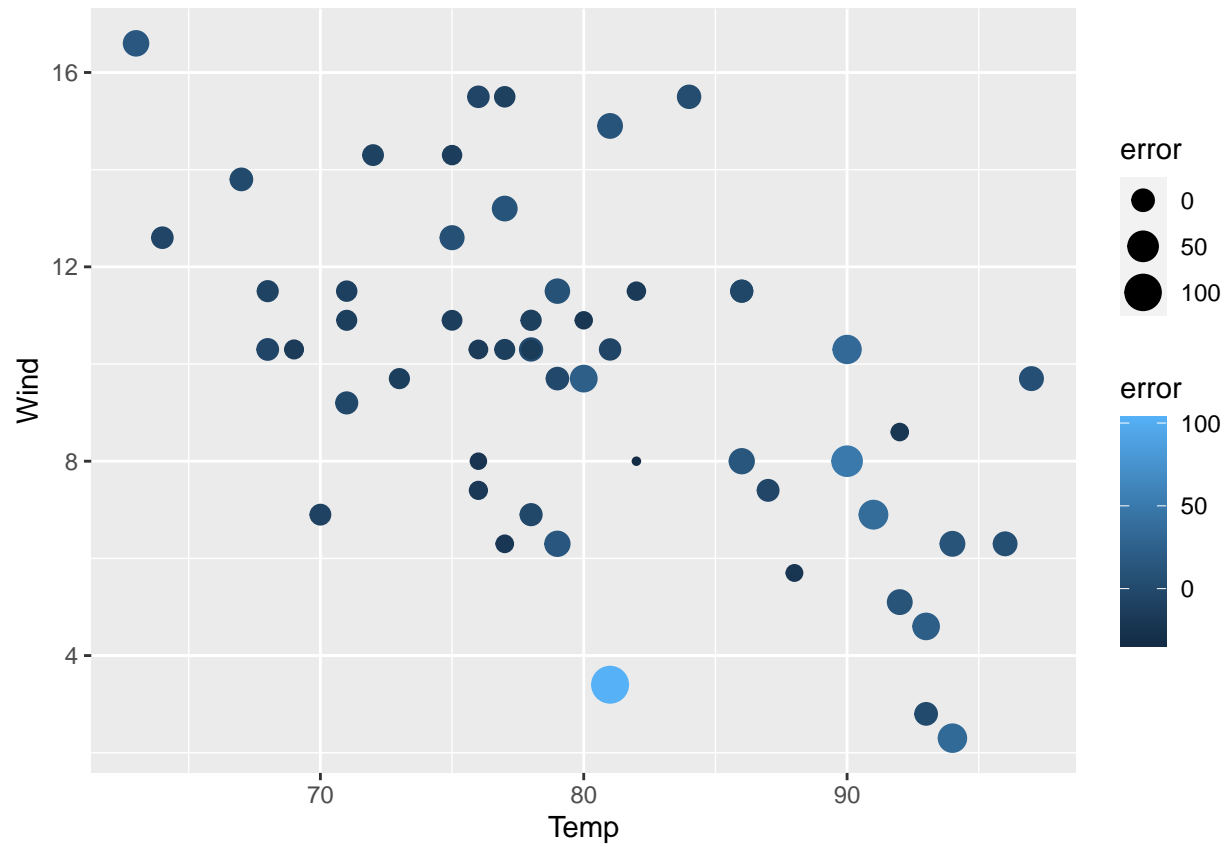
```
lmmodel <- lm(Ozone ~ ., data = trainingdata)
predlm <- data.frame(predict(lmmodel, testdata))
testdatalm <- cbind(testdata, predlm)
colnames(testdatalm)[7] <- 'Pred'
testdatalm$error <- testdatalm$Ozone - testdatalm$Pred
```

Step 3.4: Create plots

```
svmplot <- ggplot(svmtestdata, aes(Temp, Wind, size = error, color = error)) +
  geom_point()
svmplot
```

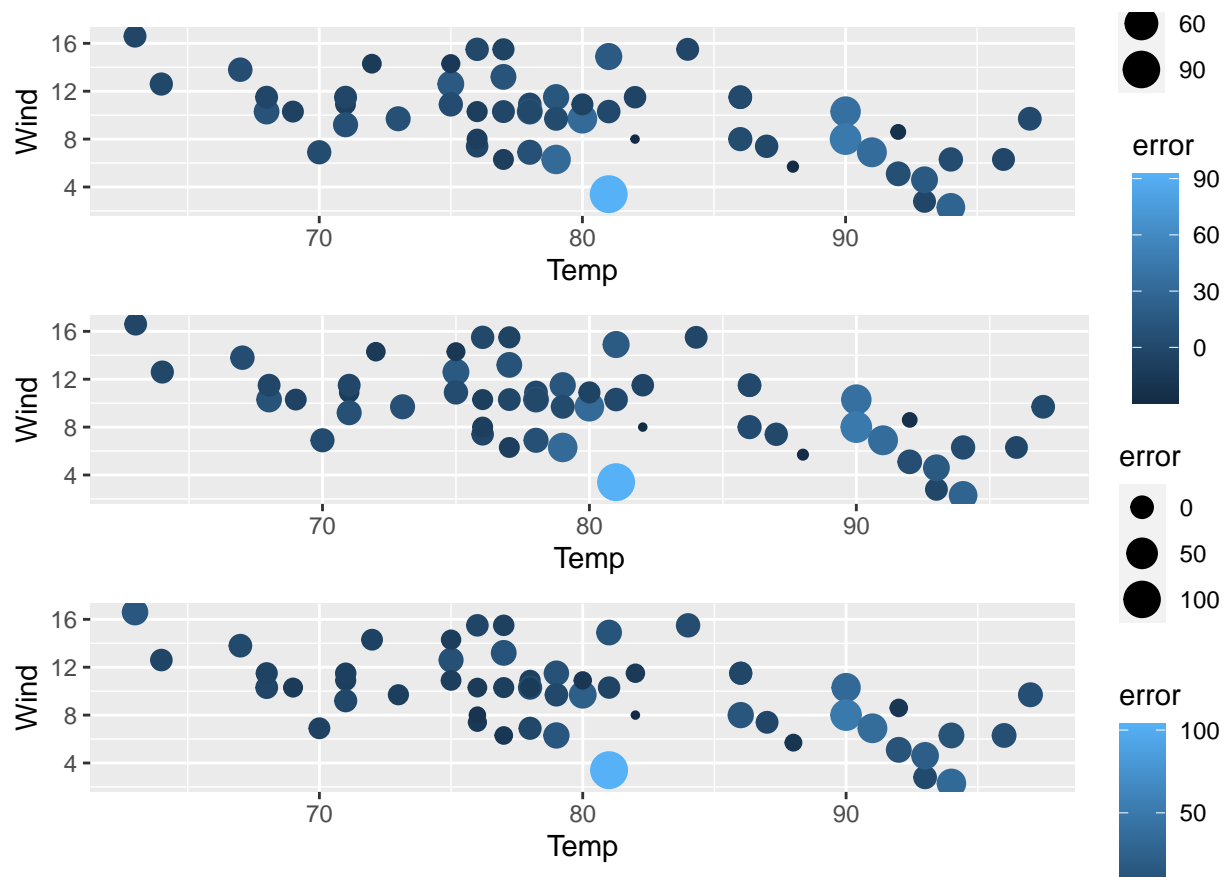


```
lmp1ot <- ggplot(testdatalm, aes(Temp, Wind, size = error, color = error)) +  
  geom_point()  
lmp1ot
```



Step 3.5: Show results

```
grid.arrange(ksvmplot, svmplot, lmpplot, nrow = 3)
```



Step 4: Create a 'goodOzone' variable

Find average of Ozone

goodOzone = 0 if Ozone is below average

goodOzone = 1 if Ozone is equal or above average

```
airdata$goodOzone <- ifelse(airdata$Ozone >= mean(airdata$Ozone),1,0)
index1 <- sample(1:dim(airdata)[1])
summary(index1)
```

```
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##         1      39      77      77     115     153
```

```
length(index1)
```

```
## [1] 153
```

Make cutpoint

```
cp <- floor(2*dim(airdata)[1]/3)
cp
```

```
## [1] 102
```

```
trainingdata2 <- airdata[index1[1:cp],]
testdata2 <- airdata[index1[cp +1]: dim(airdata)[1],]
```

Step 5: See if we can do a better job predicting ‘good’ and ‘bad’ days

Step 5.1: Build a model predicting ‘goodOzone’

```
predictOzone <- function(x, airdata){
  predictedOzone <- predict(x, airdata)
  results <- table(predictedOzone, airdata$Ozone)
  print(results)
  perccorrect <- (results[1,1]+results[2,2])/(results[1,1]+results[1,2]+results[2,1]+results[2,2])*100
  round(perccorrect)
  return(perccorrect)
}
```

Step 5.2 & 5.3 Test Model

```
goksvm <- ksvm(Ozone ~., data=airdata)
predictOzone(goksvm, airdata)
```

```
##
## predictedOzone      1  4  6  7  8  9 10 11 12 13 14 16 18 19 20 21 22 23 24 27 28 29
##  9.78069989322386  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 10.8641229843079  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 11.860931939278  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 12.0963758410935  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 12.3576671524483  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0
## 12.3655830151485  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 13.1858107379496  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 13.2330700799296  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0
## 13.5853479875092  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 13.7068653229034  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0
## 13.8786268963287  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0
## 14.0013460984921  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 14.2342014348448  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 14.5199080820857  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0
## 15.1248714314301  0  0  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0
## 15.1253459961541  0  0  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0
## 15.5501591688206  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0
## 15.8756710973576  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0
## 16.5045673289735  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0
## 16.666270151153  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0
## 16.864580707056  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0
## 16.8768064772547  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0
## 16.9196289687195  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0
## 16.945002855784  0  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0
## 16.983554510852  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0  0
## 18.2641846219031  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0  0
## 18.6338142887307  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
## 18.8597280898453  0  0  0  0  0  0  0  0  0  0  0  1  0  0  0  0  0  0  0  0  0
```

##	19.3507968871585	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	19.4871365422349	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	20.0048251236676	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
##	20.0687387811333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	20.1321939455506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
##	20.133134201509	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
##	20.4240457246654	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	20.7127507444202	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	20.727199104573	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
##	20.8720463728521	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
##	21.2265404083514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	21.3597731348508	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	21.7387202385515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
##	22.2133195481401	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
##	22.3033043820997	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
##	22.5833243884177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	22.8741287857901	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
##	22.9787273831542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
##	23.8697119898949	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	23.8720341183085	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	23.9009869688595	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
##	24.1263999654076	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
##	24.2489742957413	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
##	24.2852986427005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
##	24.4990052730769	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	25.1628379337327	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	26.0778237147056	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	26.2175354497594	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
##	27.1016279778197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	27.1419119249263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	28.5833096231744	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
##	30.4894349662425	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
##	30.8351889609524	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
##	30.8635362978379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
##	30.9516767305576	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	32.1300079943285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	33.1304553170647	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.0910740439561	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.1223754597108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.1342564500255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	35.6634618732134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.142443527965	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.8399318624926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.8760904196243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	38.2134822068653	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.254989796231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2552489598567	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2554440473424	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2563724233572	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2572233354597	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2589893568715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2661936914048	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.4382577611649	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.476564145581	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

```

## 39.7257209004432 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 40.7253691082477 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 40.994082170422 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 41.0954190507979 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 41.1158401100431 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 41.2356132858052 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 41.5723249696649 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 41.734564571672 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 42.2125237995917 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 42.7279475436337 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 42.9128319705221 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 43.1178173307296 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 43.977964128336 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 44.1453012141852 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 44.793028257781 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 44.8485676809947 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 44.9270615514155 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 44.9880162839017 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 45.0004792610458 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 45.0006074917473 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 45.0052038950822 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 45.0100226944642 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 46.1830163775126 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 46.188589081439 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 46.3702348375946 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 48.1401542152955 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 48.6323951511132 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 49.0095321797172 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 49.1211742387765 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 49.375094430079 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 49.7054179851637 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 50.3167760014486 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 50.3566874291938 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 50.3672120550705 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 50.9676085283446 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 52.3789862887594 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 53.9201033114456 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 54.539439446263 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 54.5920896315996 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 55.1250394920458 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 56.1330501598418 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 60.8918229606083 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 62.3595706447742 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 63.8765144762376 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 64.6424812075779 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 64.7883581792454 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 66.0441407692032 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 66.8615354588646 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 68.9305633337335 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 70.1259394423809 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 70.6515839534545 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 71.2682710637329 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 73.1241801261661 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 73.1381873749632 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

```


##	73.508721939773	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	74.7349118025413	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	74.8209084940658	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	75.1936092127409	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	76.1269383892451	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	76.1809543442349	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	77.6256799907322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	79.607391857443	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	80.3638762264368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	80.6420072076964	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	80.8681902213974	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	81.7921385896548	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	82.1383900565665	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	83.3883803882362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	86.1308773863834	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	90.2600959988822	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	91.2394606360924	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##																				
##	predictedOzone	30	31	32	34	35	36	37	39	40	41	42.1293103448276	44	45	46	47				
##	9.78069989322386	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	10.8641229843079	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	11.860931939278	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	12.0963758410935	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	12.3576671524483	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	12.3655830151485	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	13.1858107379496	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	13.2330700799296	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	13.5853479875092	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	13.7068653229034	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	13.8786268963287	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	14.0013460984921	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	14.2342014348448	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	14.5199080820857	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	15.1248714314301	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	15.1253459961541	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	15.5501591688206	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	15.8756710973576	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	16.5045673289735	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	16.666270151153	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	16.864580707056	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	16.8768064772547	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	16.9196289687195	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	16.945002855784	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	16.983554510852	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	18.2641846219031	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	18.6338142887307	0	0	0	1	0	0	0	0	0	0		0	0	0	0	0			
##	18.8597280898453	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	19.3507968871585	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	19.4871365422349	0	0	1	0	0	0	0	0	0	0		0	0	0	0	0			
##	20.0048251236676	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	20.0687387811333	1	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	20.1321939455506	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	20.133134201509	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			
##	20.4240457246654	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0			

18

[illegible]

[illegible]

##	22.3033043820997	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	22.5833243884177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	22.8741287857901	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	22.9787273831542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	23.8697119898949	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	23.8720341183085	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	23.9009869688595	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.1263999654076	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.2489742957413	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.2852986427005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.4990052730769	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	25.1628379337327	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	26.0778237147056	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	26.2175354497594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	27.1016279778197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	27.1419119249263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	28.5833096231744	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	30.4894349662425	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	30.8351889609524	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	30.8635362978379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	30.9516767305576	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	32.1300079943285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	33.1304553170647	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.0910740439561	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.1223754597108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.1342564500255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	35.6634618732134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.142443527965	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.8399318624926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.8760904196243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	38.2134822068653	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.254989796231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2552489598567	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2554440473424	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2563724233572	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2572233354597	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2589893568715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2661936914048	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.4382577611649	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.476564145581	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.7257209004432	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	40.7253691082477	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	40.994082170422	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.0954190507979	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
##	41.1158401100431	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.2356132858052	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.5723249696649	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.734564571672	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	42.2125237995917	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	42.7279475436337	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	42.9128319705221	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	43.1178173307296	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	43.977964128336	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.1453012141852	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

##	44.793028257781	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.8485676809947	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.9270615514155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.9880162839017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0004792610458	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0006074917473	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0052038950822	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0100226944642	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	46.1830163775126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	46.188589081439	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
##	46.3702348375946	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	48.1401542152955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	48.6323951511132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.0095321797172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.1211742387765	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.375094430079	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
##	49.7054179851637	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	50.3167760014486	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	50.3566874291938	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	50.3672120550705	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	50.9676085283446	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
##	52.3789862887594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	53.9201033114456	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	54.539439446263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	54.5920896315996	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	55.1250394920458	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	56.1330501598418	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
##	60.8918229606083	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
##	62.3595706447742	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	63.8765144762376	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
##	64.6424812075779	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
##	64.7883581792454	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	66.0441407692032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
##	66.8615354588646	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
##	68.9305633337335	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	70.1259394423809	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	70.6515839534545	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
##	71.2682710637329	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.1241801261661	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.1381873749632	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
##	73.508721939773	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
##	74.7349118025413	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	74.8209084940658	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	75.1936092127409	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	76.1269383892451	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
##	76.1809543442349	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	77.6256799907322	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	79.607391857443	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
##	80.3638762264368	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
##	80.6420072076964	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	80.8681902213974	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
##	81.7921385896548	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	82.1383900565665	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
##	83.3883803882362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

##	86.1308773863834	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
##	90.2600959988822	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	91.2394606360924	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##																					
##	predictedOzone	89	91	96	97	108	110	115	118	122	135	168									
##	9.78069989322386	0	0	0	0	0	0	0	0	0	0	0									
##	10.8641229843079	0	0	0	0	0	0	0	0	0	0	0									
##	11.860931939278	0	0	0	0	0	0	0	0	0	0	0									
##	12.0963758410935	0	0	0	0	0	0	0	0	0	0	0									
##	12.3576671524483	0	0	0	0	0	0	0	0	0	0	0									
##	12.3655830151485	0	0	0	0	0	0	0	0	0	0	0									
##	13.1858107379496	0	0	0	0	0	0	0	0	0	0	0									
##	13.2330700799296	0	0	0	0	0	0	0	0	0	0	0									
##	13.5853479875092	0	0	0	0	0	0	0	0	0	0	0									
##	13.7068653229034	0	0	0	0	0	0	0	0	0	0	0									
##	13.8786268963287	0	0	0	0	0	0	0	0	0	0	0									
##	14.0013460984921	0	0	0	0	0	0	0	0	0	0	0									
##	14.2342014348448	0	0	0	0	0	0	0	0	0	0	0									
##	14.5199080820857	0	0	0	0	0	0	0	0	0	0	0									
##	15.1248714314301	0	0	0	0	0	0	0	0	0	0	0									
##	15.1253459961541	0	0	0	0	0	0	0	0	0	0	0									
##	15.5501591688206	0	0	0	0	0	0	0	0	0	0	0									
##	15.8756710973576	0	0	0	0	0	0	0	0	0	0	0									
##	16.5045673289735	0	0	0	0	0	0	0	0	0	0	0									
##	16.6662701511153	0	0	0	0	0	0	0	0	0	0	0									
##	16.864580707056	0	0	0	0	0	0	0	0	0	0	0									
##	16.8768064772547	0	0	0	0	0	0	0	0	0	0	0									
##	16.9196289687195	0	0	0	0	0	0	0	0	0	0	0									
##	16.945002855784	0	0	0	0	0	0	0	0	0	0	0									
##	16.983554510852	0	0	0	0	0	0	0	0	0	0	0									
##	18.2641846219031	0	0	0	0	0	0	0	0	0	0	0									
##	18.6338142887307	0	0	0	0	0	0	0	0	0	0	0									
##	18.8597280898453	0	0	0	0	0	0	0	0	0	0	0									
##	19.3507968871585	0	0	0	0	0	0	0	0	0	0	0									
##	19.4871365422349	0	0	0	0	0	0	0	0	0	0	0									
##	20.0048251236676	0	0	0	0	0	0	0	0	0	0	0									
##	20.0687387811333	0	0	0	0	0	0	0	0	0	0	0									
##	20.1321939455506	0	0	0	0	0	0	0	0	0	0	0									
##	20.133134201509	0	0	0	0	0	0	0	0	0	0	0									
##	20.4240457246654	0	0	0	0	0	0	0	0	0	0	0									
##	20.7127507444202	0	0	0	0	0	0	0	0	0	0	0									
##	20.727199104573	0	0	0	0	0	0	0	0	0	0	0									
##	20.8720463728521	0	0	0	0	0	0	0	0	0	0	0									
##	21.2265404083514	0	0	0	0	0	0	0	0	0	0	0									
##	21.3597731348508	0	0	0	0	0	0	0	0	0	0	0									
##	21.7387202385515	0	0	0	0	0	0	0	0	0	0	0									
##	22.2133195481401	0	0	0	0	0	0	0	0	0	0	0									
##	22.3033043820997	0	0	0	0	0	0	0	0	0	0	0									
##	22.5833243884177	0	0	0	0	0	0	0	0	0	0	0									
##	22.8741287857901	0	0	0	0	0	0	0	0	0	0	0									
##	22.9787273831542	0	0	0	0	0	0	0	0	0	0	0									
##	23.8697119898949	0	0	0	0	0	0	0	0	0	0	0									
##	23.8720341183085	0	0	0	0	0	0	0	0	0	0	0									
##	23.9009869688595	0	0	0	0	0	0	0	0	0	0	0									

##	24.1263999654076	0	0	0	0	0	0	0	0	0	0
##	24.2489742957413	0	0	0	0	0	0	0	0	0	0
##	24.2852986427005	0	0	0	0	0	0	0	0	0	0
##	24.4990052730769	0	0	0	0	0	0	0	0	0	0
##	25.1628379337327	0	0	0	0	0	0	0	0	0	0
##	26.0778237147056	0	0	0	0	0	0	0	0	0	0
##	26.2175354497594	0	0	0	0	0	0	0	0	0	0
##	27.1016279778197	0	0	0	0	0	0	0	0	0	0
##	27.1419119249263	0	0	0	0	0	0	0	0	0	0
##	28.5833096231744	0	0	0	0	0	0	0	0	0	0
##	30.4894349662425	0	0	0	0	0	0	0	0	0	0
##	30.8351889609524	0	0	0	0	0	0	0	0	0	0
##	30.8635362978379	0	0	0	0	0	0	0	0	0	0
##	30.9516767305576	0	0	0	0	0	0	0	0	0	0
##	32.1300079943285	0	0	0	0	0	0	0	0	0	0
##	33.1304553170647	0	0	0	0	0	0	0	0	0	0
##	34.0910740439561	0	0	0	0	0	0	0	0	0	0
##	34.1223754597108	0	0	0	0	0	0	0	0	0	0
##	34.1342564500255	0	0	0	0	0	0	0	0	0	0
##	35.6634618732134	0	0	0	0	0	0	0	0	0	0
##	37.142443527965	0	0	0	0	0	0	0	0	0	0
##	37.8399318624926	0	0	0	0	0	0	0	0	0	0
##	37.8760904196243	0	0	0	0	0	0	0	0	0	0
##	38.2134822068653	0	0	0	0	0	0	0	0	0	0
##	39.254989796231	0	0	0	0	0	0	0	0	0	0
##	39.2552489598567	0	0	0	0	0	0	0	0	0	0
##	39.2554440473424	0	0	0	0	0	0	0	0	0	0
##	39.2563724233572	0	0	0	0	0	0	0	0	0	0
##	39.2572233354597	0	0	0	0	0	0	0	0	0	0
##	39.2589893568715	0	0	0	0	0	0	0	0	0	0
##	39.2661936914048	0	0	0	0	0	0	0	0	0	0
##	39.4382577611649	0	0	0	0	0	0	0	0	0	0
##	39.476564145581	0	0	0	0	0	0	0	0	0	0
##	39.7257209004432	0	0	0	0	0	0	0	0	0	0
##	40.7253691082477	0	0	0	0	0	0	0	0	0	0
##	40.994082170422	0	0	0	0	0	0	0	0	0	0
##	41.0954190507979	0	0	0	0	0	0	0	0	0	0
##	41.1158401100431	0	0	0	0	0	0	0	0	0	0
##	41.2356132858052	0	0	0	0	0	0	0	0	0	0
##	41.5723249696649	0	0	0	0	0	0	0	0	0	0
##	41.734564571672	0	0	0	0	0	0	0	0	0	0
##	42.2125237995917	0	0	0	0	0	0	0	0	0	0
##	42.7279475436337	0	0	0	0	0	0	0	0	0	0
##	42.9128319705221	0	0	0	0	0	0	0	0	0	0
##	43.1178173307296	0	0	0	0	0	0	0	0	0	0
##	43.977964128336	0	0	0	0	0	0	0	0	0	0
##	44.1453012141852	0	0	0	0	0	0	0	0	0	0
##	44.793028257781	0	0	0	0	0	0	0	0	0	0
##	44.8485676809947	0	0	0	0	0	0	0	0	0	0
##	44.9270615514155	0	0	0	0	0	0	0	0	0	0
##	44.9880162839017	0	0	0	0	0	0	0	0	0	0
##	45.0004792610458	0	0	0	0	0	0	0	0	0	0
##	45.0006074917473	0	0	0	0	0	0	0	0	0	0
##	45.0052038950822	0	0	0	0	0	0	0	0	0	0


```

## 45.0100226944642 0 0 0 0 0 0 0 0 0 0 0
## 46.1830163775126 0 0 0 0 0 0 0 0 0 0 0
## 46.188589081439 0 0 0 0 0 0 0 0 0 0 0
## 46.3702348375946 0 0 0 0 0 0 0 0 0 0 0
## 48.1401542152955 0 0 0 0 0 0 0 0 0 0 0
## 48.6323951511132 0 0 0 0 0 0 0 0 0 0 0
## 49.0095321797172 0 0 0 0 0 0 0 0 0 0 0
## 49.1211742387765 0 0 0 0 0 0 0 0 0 0 0
## 49.375094430079 0 0 0 0 0 0 0 0 0 0 0
## 49.7054179851637 0 0 0 0 0 0 0 0 0 0 0
## 50.3167760014486 0 0 0 0 0 0 1 0 0 0 0
## 50.3566874291938 0 0 0 0 0 0 0 0 0 0 0
## 50.3672120550705 0 0 0 0 0 0 0 0 0 0 0
## 50.9676085283446 0 0 0 0 0 0 0 0 0 0 0
## 52.3789862887594 0 0 0 0 0 0 0 0 0 0 0
## 53.9201033114456 0 0 0 0 0 0 0 0 0 0 0
## 54.539439446263 0 0 0 0 0 0 0 0 0 0 0
## 54.5920896315996 0 0 0 0 0 0 0 0 0 0 0
## 55.1250394920458 0 0 0 0 0 0 0 0 0 0 0
## 56.1330501598418 0 0 0 0 0 0 0 0 0 0 0
## 60.8918229606083 0 0 0 0 0 0 0 0 0 0 0
## 62.3595706447742 1 0 0 0 0 0 0 0 0 0 0
## 63.8765144762376 0 0 0 0 0 0 0 0 0 0 0
## 64.6424812075779 0 0 0 0 0 0 0 0 0 0 0
## 64.7883581792454 0 0 0 0 1 0 0 0 0 0 0
## 66.0441407692032 0 0 0 0 0 0 0 0 0 0 0
## 66.8615354588646 0 0 0 0 0 0 0 0 0 0 0
## 68.9305633337335 0 0 0 0 0 0 0 0 0 0 0
## 70.1259394423809 0 0 0 0 0 0 0 0 0 0 0
## 70.6515839534545 0 0 0 0 0 0 0 0 0 0 0
## 71.2682710637329 0 0 1 0 0 0 0 0 0 0 0
## 73.1241801261661 0 0 0 0 0 0 0 0 0 0 1
## 73.1381873749632 0 0 0 0 0 0 0 0 0 0 0
## 73.508721939773 0 0 0 0 0 0 0 0 0 0 0
## 74.7349118025413 0 0 0 0 0 1 0 0 0 0 0
## 74.8209084940658 0 0 0 0 0 0 0 0 0 1 0
## 75.1936092127409 0 0 0 0 0 0 0 0 0 0 0
## 76.1269383892451 0 0 0 0 0 0 0 0 0 0 0
## 76.1809543442349 0 0 0 0 0 0 0 0 0 0 0
## 77.6256799907322 0 0 0 0 0 0 0 0 0 0 0
## 79.607391857443 0 0 0 0 0 0 0 0 0 0 0
## 80.3638762264368 0 0 0 0 0 0 0 0 0 0 0
## 80.6420072076964 0 0 0 1 0 0 0 0 0 0 0
## 80.8681902213974 0 0 0 0 0 0 0 0 0 0 0
## 81.7921385896548 0 1 0 0 0 0 0 0 0 0 0
## 82.1383900565665 0 0 0 0 0 0 0 0 0 0 0
## 83.3883803882362 0 0 0 1 0 0 0 0 0 0 0
## 86.1308773863834 0 0 0 0 0 0 0 0 0 0 0
## 90.2600959988822 0 0 0 0 0 0 0 1 0 0 0
## 91.2394606360924 0 0 0 0 0 0 0 0 1 0 0

```

```
## [1] NaN
```

```

modell1 <- predict(goksvm, airdata)
modellerror <- (airdata$Ozone - modell1)

```

```
sroot <- sqrt(model1error)
```

```
## Warning in sqrt(model1error): NaNs produced
```

```
gosvm <- svm(Ozone ~., data=airdata)
```

```
predictOzone(gosvm, airdata)
```

```
##
## predictedOzone      1 4 6 7 8 9 10 11 12 13 14 16 18 19 20 21 22 23 24 27 28 29
## 9.9025307349584 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 10.8711080648739 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 11.9394747036621 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0
## 12.3017264312316 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 12.3101889008087 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 13.0020962950513 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 13.0390747579801 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0
## 13.5716215075556 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0
## 13.6359291339562 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 13.7910478290435 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 13.8756126540346 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0
## 14.0951314844461 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0
## 14.2262959644424 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 14.708647205553 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 15.1237849721414 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0
## 15.1310461429796 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0
## 15.1484084164241 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0
## 15.876268364933 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0
## 16.0073259452368 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0
## 16.662582674948 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0
## 16.8629068454074 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0
## 16.8776789030025 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0
## 16.8784648150769 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0
## 16.8816220647404 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0
## 17.191041053767 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0
## 17.8544319388458 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0
## 18.2865274619685 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 18.7272783033283 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 18.8584625209779 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0
## 19.2954104433569 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0
## 19.5692378621685 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0
## 19.6854808736456 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 20.1289160109891 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0
## 20.1315760364969 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0
## 20.3111314960885 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0
## 20.3567005692189 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0
## 20.8636588439033 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0
## 21.4631512085948 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0
## 21.4703868752171 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 21.6330651240061 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0
## 21.9290683940687 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 22.0410210661982 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0
## 22.0779978221552 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## 22.8710600442576 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0
## 22.9498667178856 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0
```

##	23.0169013713829	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
##	23.8539905668544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
##	23.8569297209772	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	23.8815334866746	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	24.1284732997428	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
##	24.3224170534308	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
##	24.4085380700471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
##	24.7797548185407	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.9425717116561	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
##	25.7938632102098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	26.536444418633	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	26.8745244804518	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	27.1304906221477	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	28.5849990689957	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
##	30.7186418047636	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
##	30.8673956083801	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
##	30.8681574382225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
##	30.970292394757	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	32.1194206758517	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	33.1392467382325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.0828433219443	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.1217835630824	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.1266493946271	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	35.2356363679281	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.1265778702622	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.3652407794255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.8652697370909	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	38.251274387473	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	38.438800307132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2527486273768	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2584383476484	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2616191204888	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2654560346125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2698285672544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2706394676018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2730271720595	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.3853688495265	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.6293063446364	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	40.0009800595252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	40.802731411412	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.1367156846207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.3427625342393	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.6076315701397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.7259698739921	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.8237607137121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	42.1711337457536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	42.9504595810374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	43.0148661433075	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	43.036877854199	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.0921198732731	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.7377926658289	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.8086516811649	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.989641573853	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.000371412213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

##	45.000976326441	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0018819660665	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0097475184228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0101942049708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.4309703184361	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	46.2493104431256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	46.581881628802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	46.8470550535565	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	48.356313729784	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	48.8795642561298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.135265330151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.2329816422883	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.648244905069	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.8541077463346	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.9202224923548	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	50.3247950372624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	51.3422309615373	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	52.2883808474692	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	52.6705341563387	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	54.0884452088287	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	54.247904417016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	55.1065266351861	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	55.3199503708813	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	56.1260966763874	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	60.7011400970944	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	61.5370876601325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	63.8652176725283	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	64.4979498610063	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	64.5094274676964	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	65.4213224809998	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	66.8720314746652	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	68.5973900886426	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	69.6549626341314	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	70.120728651387	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	71.1052676461419	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	72.9622411828957	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.1397988187746	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.4056335465783	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.4905681163257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.8659390725964	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.8955854702701	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	76.1184753707587	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	76.9917940456514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	77.6518003663625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	78.5242154273008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	79.6416424983791	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	79.9962766399123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	80.855512387924	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	81.3483681246854	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	82.3713350196389	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	82.6247052593654	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	86.2801661657348	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	89.6907428267814	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	91.2496832885654	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

##	predictedOzone	30	31	32	34	35	36	37	39	40	41	42.1293103448276	44	45	46	47
##	9.9025307349584	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	10.87111080648739	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	11.9394747036621	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	12.3017264312316	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	12.3101889008087	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	13.0020962950513	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	13.0390747579801	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	13.5716215075556	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	13.6359291339562	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	13.7910478290435	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	13.8756126540346	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	14.0951314844461	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	14.2262959644424	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	14.708647205553	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	15.1237849721414	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	15.1310461429796	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	15.1484084164241	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	15.876268364933	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	16.0073259452368	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	16.662582674948	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	16.8629068454074	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	16.8776789030025	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	16.8784648150769	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	16.8816220647404	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	17.191041053767	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	17.8544319388458	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	18.2865274619685	0	0	0	1	0	0	0	0	0	0		0	0	0	0
##	18.7272783033283	0	0	1	0	0	0	0	0	0	0		0	0	0	0
##	18.8584625209779	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	19.2954104433569	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	19.5692378621685	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	19.6854808736456	1	0	0	0	0	0	0	0	0	0		0	0	0	0
##	20.1289160109891	0	0	0	0	0	0	0	0	0	0		0	0	0	0
##	20.1315760364969	0														

[illegible]

[illegible]

##	13.0020962950513	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	13.0390747579801	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	13.5716215075556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	13.6359291339562	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	13.7910478290435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	13.8756126540346	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	14.0951314844461	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	14.2262959644424	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	14.708647205553	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	15.1237849721414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	15.1310461429796	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	15.1484084164241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	15.876268364933	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	16.0073259452368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	16.662582674948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	16.8629068454074	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	16.8776789030025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	16.8784648150769	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	16.8816220647404	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	17.191041053767	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	17.8544319388458	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	18.2865274619685	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	18.7272783033283	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	18.8584625209779	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	19.2954104433569	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	19.5692378621685	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	19.6854808736456	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	20.1289160109891	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	20.1315760364969	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	20.3111314960885	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	20.3567005692189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	20.8636588439033	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	21.4631512085948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	21.4703868752171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	21.6330651240061	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	21.9290683940687	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	22.0410210661982	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	22.0779978221552	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	22.8710600442576	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	22.9498667178856	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	23.0169013713829	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	23.8539905668544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	23.8569297209772	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	23.8815334866746	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.1284732997428	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.3224170534308	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.4085380700471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.7797548185407	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	24.9425717116561	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	25.7938632102098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	26.536444418633	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	26.8745244804518	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	27.1304906221477	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	28.5849990689957	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

##	30.7186418047636	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	30.8673956083801	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	30.8681574382225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	30.970292394757	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	32.1194206758517	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	33.1392467382325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.0828433219443	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.1217835630824	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	34.1266493946271	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	35.2356363679281	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.1265778702622	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.3652407794255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	37.8652697370909	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	38.251274387473	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	38.438800307132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2527486273768	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2584383476484	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2616191204888	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2654560346125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2698285672544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2706394676018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.2730271720595	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.3853688495265	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	39.6293063446364	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	40.0009800595252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	40.802731411412	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
##	41.1367156846207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.3427625342393	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.6076315701397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.7259698739921	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	41.8237607137121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	42.1711337457536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	42.9504595810374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	43.0148661433075	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	43.036877854199	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.0921198732731	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.7377926658289	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.8086516811649	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	44.989641573853	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.000371412213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.000976326441	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0018819660665	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0097475184228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.0101942049708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	45.4309703184361	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	46.2493104431256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	46.581881628802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	46.8470550535565	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
##	48.356313729784	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	48.8795642561298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.135265330151	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.2329816422883	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.648244905069	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	49.8541077463346	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

##	49.9202224923548	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	50.3247950372624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	51.3422309615373	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
##	52.2883808474692	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	52.6705341563387	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	54.0884452088287	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	54.247904417016	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	55.1065266351861	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	55.3199503708813	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	56.1260966763874	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
##	60.7011400970944	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
##	61.5370876601325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	63.8652176725283	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
##	64.4979498610063	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	64.5094274676964	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
##	65.4213224809998	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
##	66.8720314746652	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
##	68.5973900886426	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	69.6549626341314	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
##	70.120728651387	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	71.1052676461419	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	72.9622411828957	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
##	73.1397988187746	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
##	73.4056335465783	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.4905681163257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.8659390725964	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	73.8955854702701	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	76.1184753707587	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
##	76.9917940456514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	77.6518003663625	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
##	78.5242154273008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	79.6416424983791	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
##	79.9962766399123	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
##	80.855512387924	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
##	81.3483681246854	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	82.3713350196389	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	82.6247052593654	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
##	86.2801661657348	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
##	89.6907428267814	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##	91.2496832885654	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
##																			
##	predictedOzone	89	91	96	97	108	110	115	118	122	135	168							
##	9.9025307349584	0	0	0	0	0	0	0	0	0	0	0							
##	10.8711080648739	0	0	0	0	0	0	0	0	0	0	0							
##	11.9394747036621	0	0	0	0	0	0	0	0	0	0	0							
##	12.3017264312316	0	0	0	0	0	0	0	0	0	0	0							
##	12.3101889008087	0	0	0	0	0	0	0	0	0	0	0							
##	13.0020962950513	0	0	0	0	0	0	0	0	0	0	0							
##	13.0390747579801	0	0	0	0	0	0	0	0	0	0	0							
##	13.5716215075556	0	0	0	0	0	0	0	0	0	0	0							
##	13.6359291339562	0	0	0	0	0	0	0	0	0	0	0							
##	13.7910478290435	0	0	0	0	0	0	0	0	0	0	0							
##	13.8756126540346	0	0	0	0	0	0	0	0	0	0	0							
##	14.0951314844461	0	0	0	0	0	0	0	0	0	0	0							

##	14.2262959644424	0	0	0	0	0	0	0	0	0	0
##	14.708647205553	0	0	0	0	0	0	0	0	0	0
##	15.1237849721414	0	0	0	0	0	0	0	0	0	0
##	15.1310461429796	0	0	0	0	0	0	0	0	0	0
##	15.1484084164241	0	0	0	0	0	0	0	0	0	0
##	15.876268364933	0	0	0	0	0	0	0	0	0	0
##	16.0073259452368	0	0	0	0	0	0	0	0	0	0
##	16.662582674948	0	0	0	0	0	0	0	0	0	0
##	16.8629068454074	0	0	0	0	0	0	0	0	0	0
##	16.8776789030025	0	0	0	0	0	0	0	0	0	0
##	16.8784648150769	0	0	0	0	0	0	0	0	0	0
##	16.8816220647404	0	0	0	0	0	0	0	0	0	0
##	17.191041053767	0	0	0	0	0	0	0	0	0	0
##	17.8544319388458	0	0	0	0	0	0	0	0	0	0
##	18.2865274619685	0	0	0	0	0	0	0	0	0	0
##	18.7272783033283	0	0	0	0	0	0	0	0	0	0
##	18.8584625209779	0	0	0	0	0	0	0	0	0	0
##	19.2954104433569	0	0	0	0	0	0	0	0	0	0
##	19.5692378621685	0	0	0	0	0	0	0	0	0	0
##	19.6854808736456	0	0	0	0	0	0	0	0	0	0
##	20.1289160109891	0	0	0	0	0	0	0	0	0	0
##	20.1315760364969	0	0	0	0	0	0	0	0	0	0
##	20.3111314960885	0	0	0	0	0	0	0	0	0	0
##	20.3567005692189	0	0	0	0	0	0	0	0	0	0
##	20.8636588439033	0	0	0	0	0	0	0	0	0	0
##	21.4631512085948	0	0	0	0	0	0	0	0	0	0
##	21.4703868752171	0	0	0	0	0	0	0	0	0	0
##	21.6330651240061	0	0	0	0	0	0	0	0	0	0
##	21.9290683940687	0	0	0	0	0	0	0	0	0	0
##	22.0410210661982	0	0	0	0	0	0	0	0	0	0
##	22.0779978221552	0	0	0	0	0	0	0	0	0	0
##	22.8710600442576	0	0	0	0	0	0	0	0	0	0
##	22.9498667178856	0	0	0	0	0	0	0	0	0	0
##	23.0169013713829	0	0	0	0	0	0	0	0	0	0
##	23.8539905668544	0	0	0	0	0	0	0	0	0	0
##	23.8569297209772	0	0	0	0	0	0	0	0	0	0
##	23.8815334866746	0	0	0	0	0	0	0	0	0	0
##	24.1284732997428	0	0	0	0	0	0	0	0	0	0
##	24.3224170534308	0	0	0	0	0	0	0	0	0	0
##	24.4085380700471	0	0	0	0	0	0	0	0	0	0
##	24.7797548185407	0	0	0	0	0	0	0	0	0	0
##	24.9425717116561	0	0	0	0	0	0	0	0	0	0
##	25.7938632102098	0	0	0	0	0	0	0	0	0	0
##	26.536444418633	0	0	0	0	0	0	0	0	0	0
##	26.8745244804518	0	0	0	0	0	0	0	0	0	0
##	27.1304906221477	0	0	0	0	0	0	0	0	0	0
##	28.5849990689957	0	0	0	0	0	0	0	0	0	0
##	30.7186418047636	0	0	0	0	0	0	0	0	0	0
##	30.8673956083801	0	0	0	0	0	0	0	0	0	0
##	30.8681574382225	0	0	0	0	0	0	0	0	0	0
##	30.970292394757	0	0	0	0	0	0	0	0	0	0
##	32.1194206758517	0	0	0	0	0	0	0	0	0	0
##	33.1392467382325	0	0	0	0	0	0	0	0	0	0
##	34.0828433219443	0	0	0	0	0	0	0	0	0	0

##	34.1217835630824	0	0	0	0	0	0	0	0	0	0
##	34.1266493946271	0	0	0	0	0	0	0	0	0	0
##	35.2356363679281	0	0	0	0	0	0	0	0	0	0
##	37.1265778702622	0	0	0	0	0	0	0	0	0	0
##	37.3652407794255	0	0	0	0	0	0	0	0	0	0
##	37.8652697370909	0	0	0	0	0	0	0	0	0	0
##	38.251274387473	0	0	0	0	0	0	0	0	0	0
##	38.438800307132	0	0	0	0	0	0	0	0	0	0
##	39.2527486273768	0	0	0	0	0	0	0	0	0	0
##	39.2584383476484	0	0	0	0	0	0	0	0	0	0
##	39.2616191204888	0	0	0	0	0	0	0	0	0	0
##	39.2654560346125	0	0	0	0	0	0	0	0	0	0
##	39.2698285672544	0	0	0	0	0	0	0	0	0	0
##	39.2706394676018	0	0	0	0	0	0	0	0	0	0
##	39.2730271720595	0	0	0	0	0	0	0	0	0	0
##	39.3853688495265	0	0	0	0	0	0	0	0	0	0
##	39.6293063446364	0	0	0	0	0	0	0	0	0	0
##	40.0009800595252	0	0	0	0	0	0	0	0	0	0
##	40.802731411412	0	0	0	0	0	0	0	0	0	0
##	41.1367156846207	0	0	0	0	0	0	0	0	0	0
##	41.3427625342393	0	0	0	0	0	0	0	0	0	0
##	41.6076315701397	0	0	0	0	0	0	0	0	0	0
##	41.7259698739921	0	0	0	0	0	0	0	0	0	0
##	41.8237607137121	0	0	0	0	0	0	0	0	0	0
##	42.1711337457536	0	0	0	0	0	0	0	0	0	0
##	42.9504595810374	0	0	0	0	0	0	0	0	0	0
##	43.0148661433075	0	0	0	0	0	0	0	0	0	0
##	43.036877854199	0	0	0	0	0	0	0	0	0	0
##	44.0921198732731	0	0	0	0	0	0	0	0	0	0
##	44.7377926658289	0	0	0	0	0	0	0	0	0	0
##	44.8086516811649	0	0	0	0	0	0	0	0	0	0
##	44.989641573853	0	0	0	0	0	0	0	0	0	0
##	45.000371412213	0	0	0	0	0	0	0	0	0	0
##	45.000976326441	0	0	0	0	0	0	0	0	0	0
##	45.0018819660665	0	0	0	0	0	0	0	0	0	0
##	45.0097475184228	0	0	0	0	0	0	0	0	0	0
##	45.0101942049708	0	0	0	0	0	0	0	0	0	0
##	45.4309703184361	0	0	0	0	0	0	0	0	0	0
##	46.2493104431256	0	0	0	0	0	0	0	0	0	0
##	46.581881628802	0	0	0	0	0	0	0	0	0	0
##	46.8470550535565	0	0	0	0	0	0	0	0	0	0
##	48.356313729784	0	0	0	0	0	0	0	0	0	0
##	48.8795642561298	0	0	0	0	0	0	0	0	0	0
##	49.135265330151	0	0	0	0	0	0	0	0	0	0
##	49.2329816422883	0	0	0	0	0	0	0	0	0	0
##	49.648244905069	0	0	0	0	0	0	0	0	0	0
##	49.8541077463346	0	0	0	0	0	0	1	0	0	0
##	49.9202224923548	0	0	0	0	0	0	0	0	0	0
##	50.3247950372624	0	0	0	0	0	0	0	0	0	0
##	51.3422309615373	0	0	0	0	0	0	0	0	0	0
##	52.2883808474692	0	0	0	0	0	0	0	0	0	0
##	52.6705341563387	0	0	0	0	0	0	0	0	0	0
##	54.0884452088287	0	0	0	0	0	0	0	0	0	0
##	54.247904417016	0	0	0	0	0	0	0	0	0	0

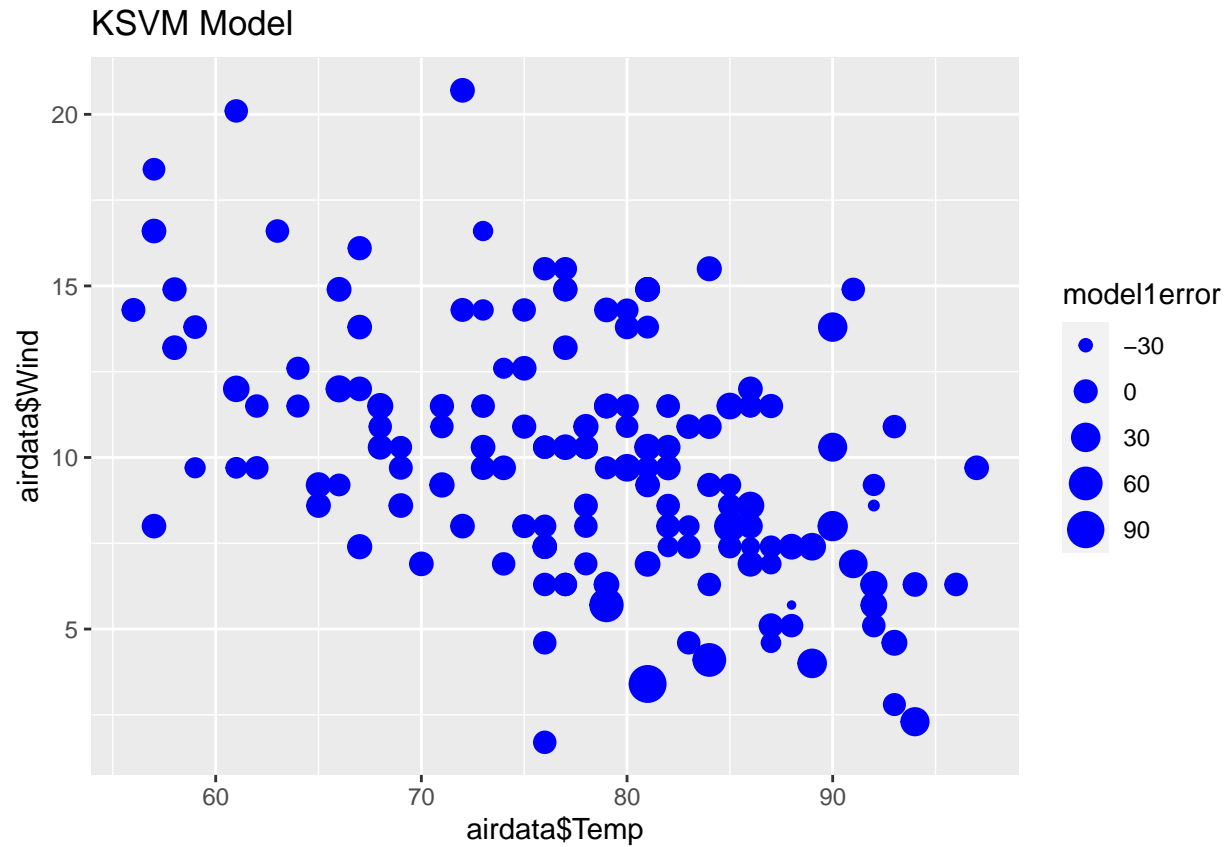
```
## 55.1065266351861 0 0 0 0 0 0 0 0 0 0 0
## 55.3199503708813 0 0 0 0 0 0 0 0 0 0 0
## 56.1260966763874 0 0 0 0 0 0 0 0 0 0 0
## 60.7011400970944 0 0 0 0 0 0 0 0 0 0 0
## 61.5370876601325 1 0 0 0 0 0 0 0 0 0 0
## 63.8652176725283 0 0 0 0 0 0 0 0 0 0 0
## 64.4979498610063 0 0 0 0 1 0 0 0 0 0 0
## 64.5094274676964 0 0 0 0 0 0 0 0 0 0 0
## 65.4213224809998 0 0 0 0 0 0 0 0 0 0 0
## 66.8720314746652 0 0 0 0 0 0 0 0 0 0 0
## 68.5973900886426 0 0 0 0 0 0 0 0 0 0 0
## 69.6549626341314 0 0 0 0 0 0 0 0 0 0 0
## 70.120728651387 0 0 0 0 0 0 0 0 0 0 0
## 71.1052676461419 0 0 1 0 0 0 0 0 0 0 0
## 72.9622411828957 0 0 0 0 0 0 0 0 0 0 0
## 73.1397988187746 0 0 0 0 0 0 0 0 0 0 0
## 73.4056335465783 0 0 0 0 0 0 0 0 0 1 0
## 73.4905681163257 0 0 0 0 0 1 0 0 0 0 0
## 73.8659390725964 0 0 0 0 0 0 0 0 0 0 1
## 73.8955854702701 0 0 0 0 0 0 0 0 0 0 0
## 76.1184753707587 0 0 0 0 0 0 0 0 0 0 0
## 76.9917940456514 0 0 0 0 0 0 0 0 0 0 0
## 77.6518003663625 0 0 0 0 0 0 0 0 0 0 0
## 78.5242154273008 0 0 0 1 0 0 0 0 0 0 0
## 79.6416424983791 0 0 0 0 0 0 0 0 0 0 0
## 79.9962766399123 0 0 0 0 0 0 0 0 0 0 0
## 80.855512387924 0 0 0 0 0 0 0 0 0 0 0
## 81.3483681246854 0 0 0 1 0 0 0 0 0 0 0
## 82.3713350196389 0 1 0 0 0 0 0 0 0 0 0
## 82.6247052593654 0 0 0 0 0 0 0 0 0 0 0
## 86.2801661657348 0 0 0 0 0 0 0 0 0 0 0
## 89.6907428267814 0 0 0 0 0 0 0 0 1 0 0
## 91.2496832885654 0 0 0 0 0 0 0 1 0 0 0
```

```
## [1] NaN
```

```
model2 <- predict(gosvm, airdata)
model2error <- (airdata$Ozone - model1)
sqrtroot <- model1error
```

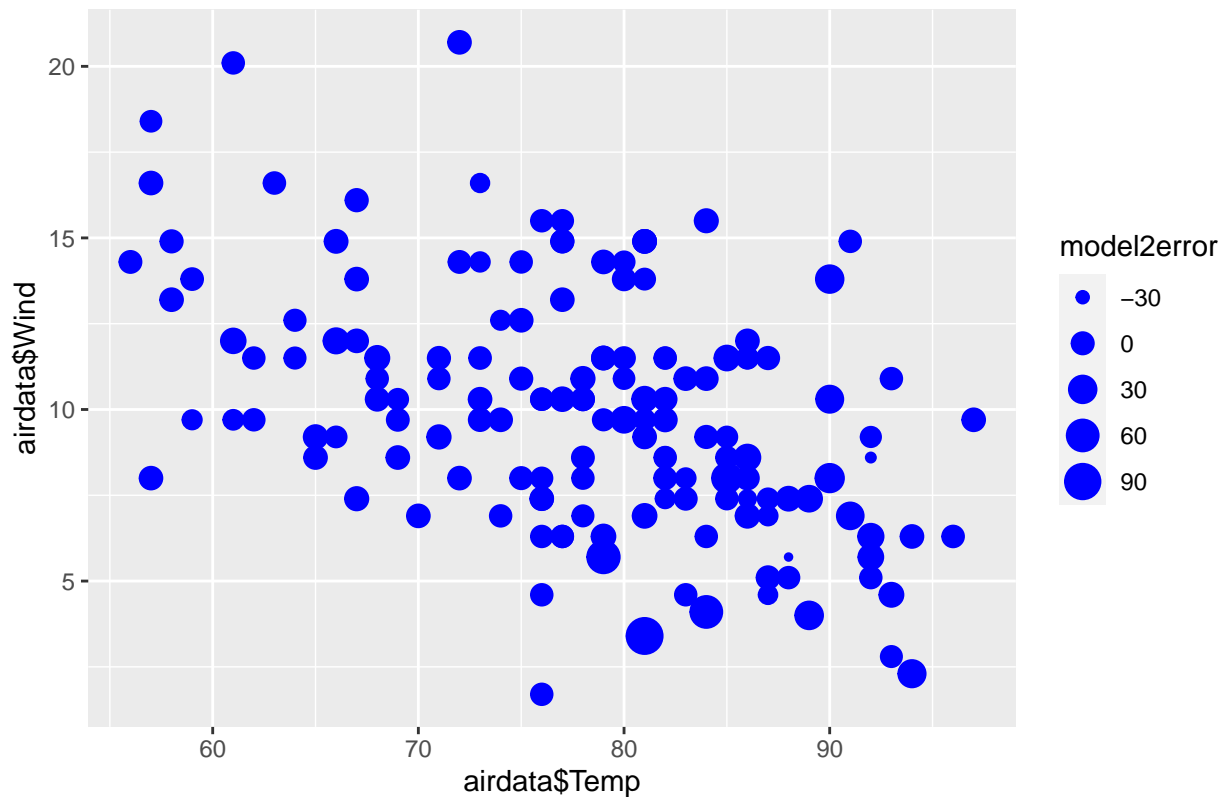
Step 5.4

```
newdf <- data.frame(airdata$Wind,airdata$Temp,model1error)
colnames(newdf) <- c("Wind", "Temp", "Error")
plotnewdf <- ggplot(data=newdf, aes(x=airdata$Temp, y=airdata$Wind)) +
  geom_point(aes(size=model1error), color = "blue") +
  ggtitle("KSVM Model")
plotnewdf
```



```
newdf2 <- data.frame(airdata$Wind,airdata$Temp,model2error)
colnames(newdf2) <- c("Wind", "Temp", "Error")
plotnewdf2 <- ggplot(data=newdf2, aes(x=airdata$Temp, y=airdata$Wind)) +
  geom_point(aes(size=model2error), color = "blue") +
  ggtitle("SVM Model")
plotnewdf2
```

SVM Model



```
modellm <- lm(Ozone ~., data=airdata)
modellm
```

```
##
## Call:
## lm(formula = Ozone ~ ., data = airdata)
##
## Coefficients:
## (Intercept)      Solar.R          Wind          Temp          Month          Day
##   -9.39606      0.04578     -2.13865      0.59080      0.48221      0.03329
##   goodOzone
##   27.19746
```

```
modellm1 <- predict(modellm, airdata)
modellmerror <- (airdata$Ozone - modellm1)
sqrroot <- sqrt(modellmerror)
```

```
## Warning in sqrt(modellmerror): NaNs produced
```

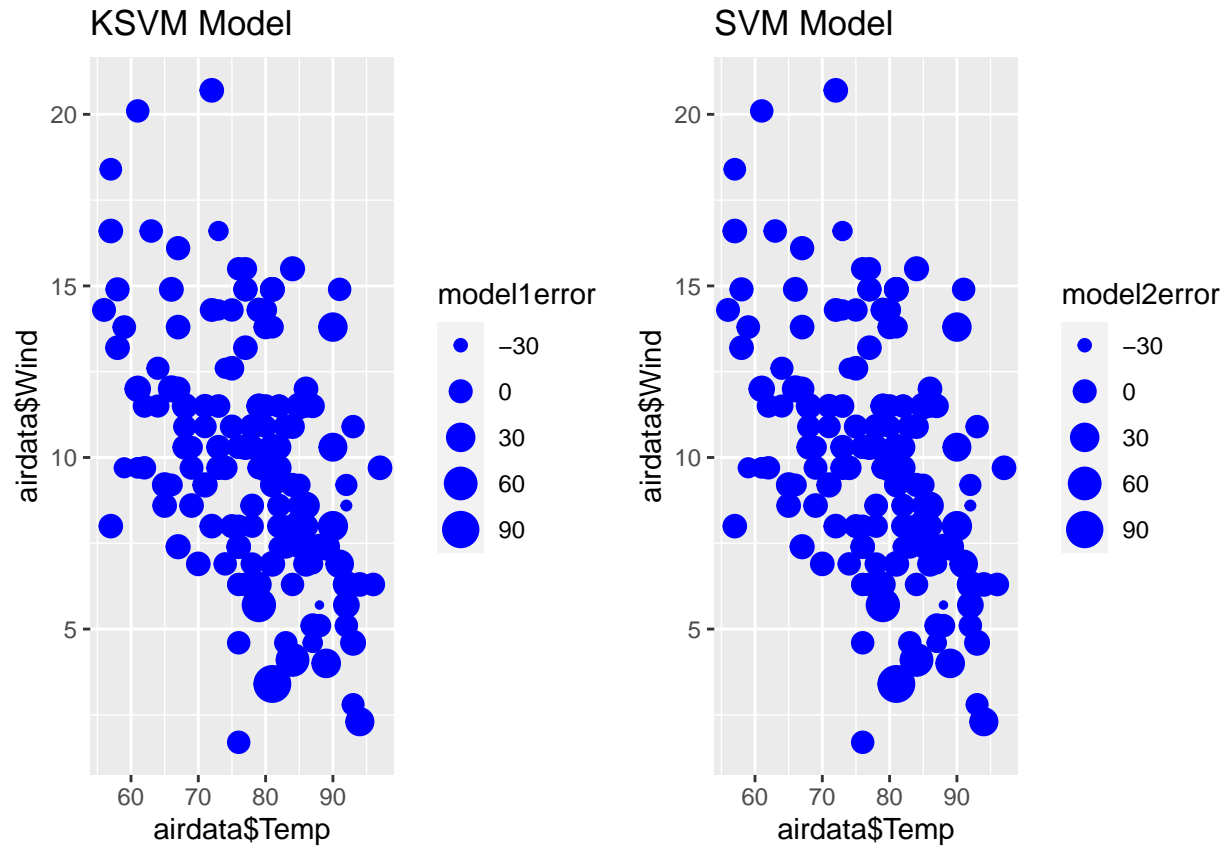
```
sqrroot
```

```
##      1      2      3      4      5      6      7      8
## 3.9365969 3.4768723    NaN    NaN 3.2767633 4.3757589    NaN 3.9803506
##      9     10     11     12     13     14     15     16
## 4.5567471    NaN    NaN    NaN    NaN    NaN 3.9337242    NaN
##     17     18     19     20     21     22     23     24
## 3.6106623 3.8067044 2.4561629    NaN    NaN    NaN    NaN 4.8579673
##     25     26     27     28     29     30     31     32
```

```
## 4.4597733 2.5444915      NaN 3.8129092      NaN 7.0070013 1.0520627      NaN
##          33          34          35          36          37          38          39          40
##          NaN 2.2595845      NaN      NaN      NaN 1.3250428      NaN 3.6092112
##          41          42          43          44          45          46          47          48
## 1.8918817      NaN      NaN      NaN      NaN      NaN 2.1450851 5.6275230
##          49          50          51          52          53          54          55          56
## 2.3417269      NaN      NaN      NaN      NaN      NaN      NaN      NaN      NaN
##          57          58          59          60          61          62          63          64
##          NaN      NaN      NaN 2.3291130      NaN 7.7857221      NaN      NaN
##          65          66          67          68          69          70          71          72
##          NaN      NaN 2.3921013 1.3684895 4.7386348 4.5726685 4.3271755      NaN
##          73          74          75          76          77          78          79          80
##          NaN 2.9305784      NaN      NaN      NaN 1.2225587      NaN 2.8527578
##          81          82          83          84          85          86          87          88
## 2.3373613      NaN      NaN      NaN 3.4856480 6.5325500      NaN 1.0128958
##          89          90          91          92          93          94          95          96
## 3.7385200      NaN      NaN      NaN 2.7582252      NaN      NaN 3.4124224
##          97          98          99          100          101          102          103          104
##          NaN      NaN 6.6639744 5.0446170 6.5194375      NaN      NaN      NaN
##          105          106          107          108          109          110          111          112
##          NaN 3.0280569      NaN 0.5407334 1.1139951      NaN 1.4019777      NaN
##          113          114          115          116          117          118          119          120
## 1.2809759 0.4510311      NaN      NaN 9.6969451 2.6332735      NaN 2.7484209
##          121          122          123          124          125          126          127          128
## 5.8702487 2.6926227 3.4119762 5.2129574 1.8242716      NaN 3.8687830      NaN
##          129          130          131          132          133          134          135          136
## 4.0208412      NaN      NaN      NaN      NaN      NaN      NaN 1.4314625      NaN
##          137          138          139          140          141          142          143          144
##          NaN      NaN      NaN 1.4718324      NaN      NaN      NaN      NaN
##          145          146          147          148          149          150          151          152
## 2.1004738 2.8462533      NaN 3.9483978      NaN      NaN      NaN      NaN
##          153
##          NaN
```

Step 5.5

```
grid.arrange(plotnewdf, plotnewdf2, ncol = 2)
```

Step 6: Which are the best Models for this data

After analyzing, the SVM model is the best