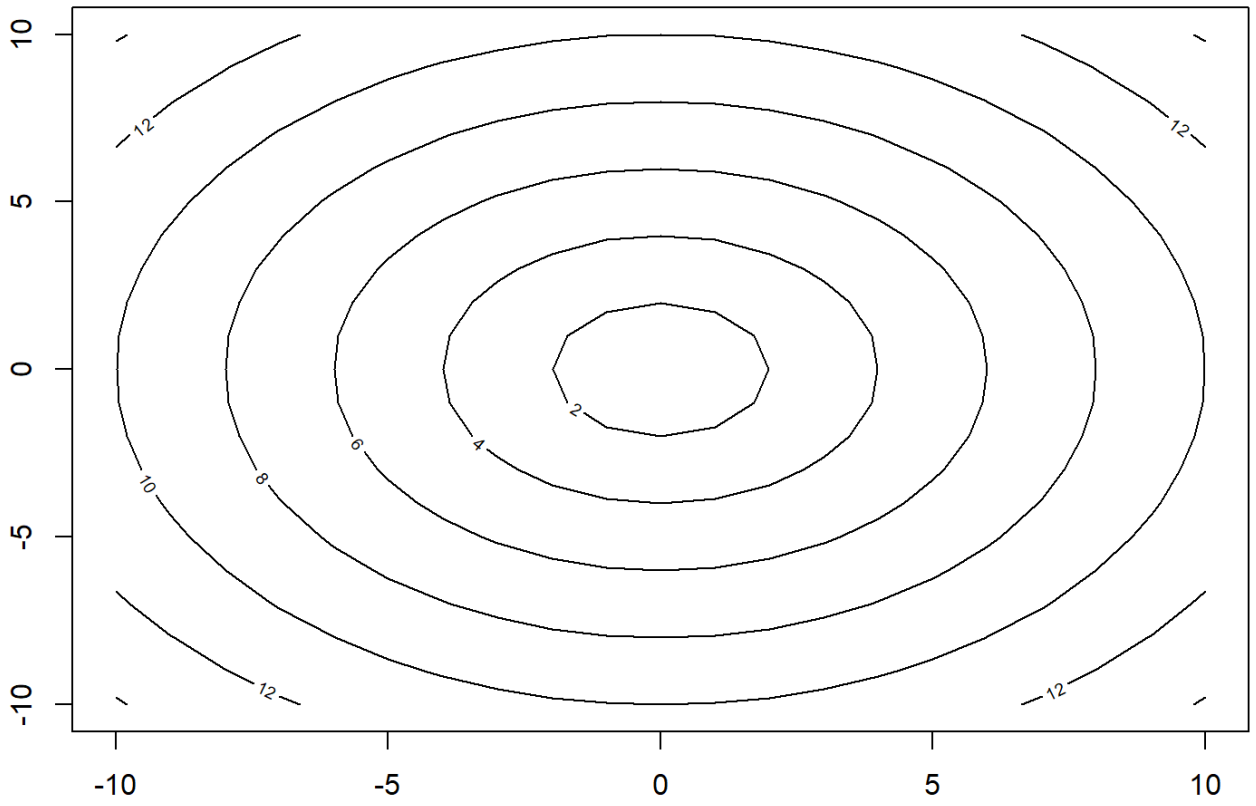
contour()

Kyle Brewster

A Simple Example

```r
x <- -10:10
y <- -10:10
z <- sqrt(outer(x ^ 2, y ^ 2, "+"))

contour(x,y,z)
```



Example with Data

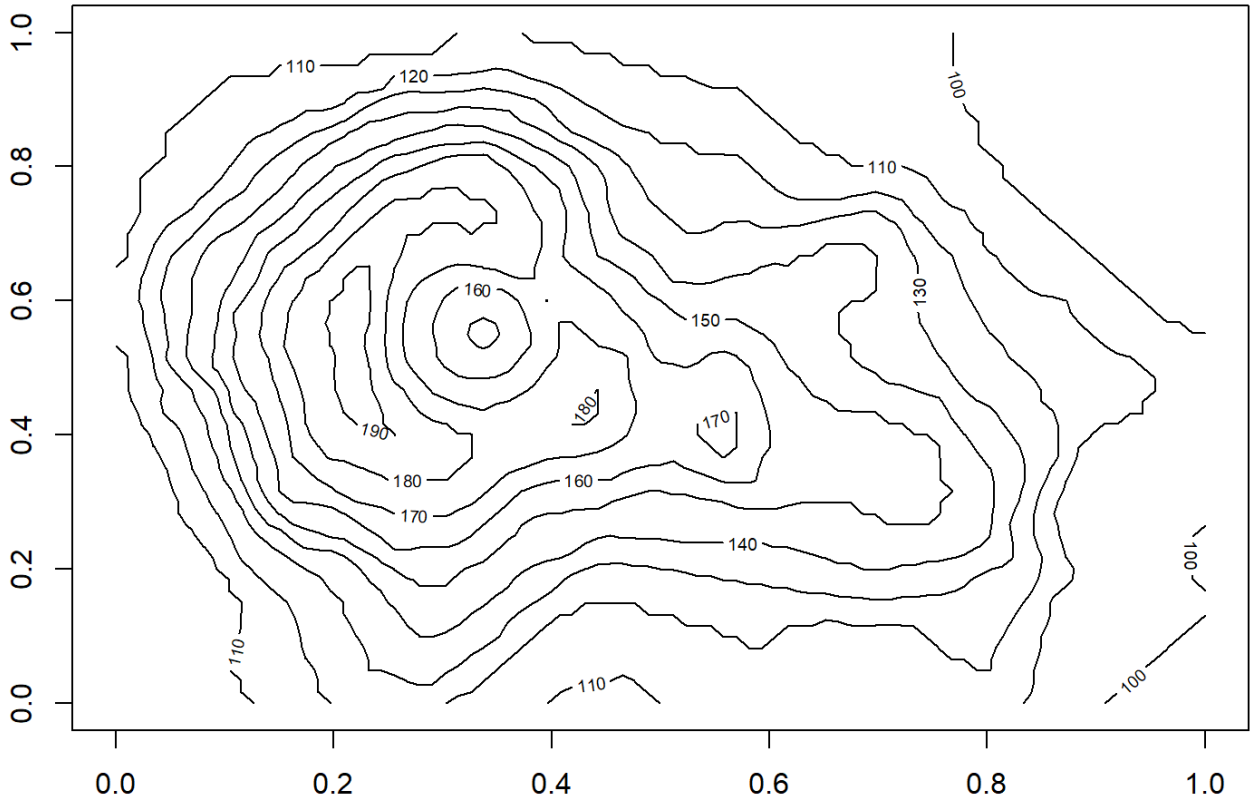
Using base `volcano` data set containing data on Auckland's (NZ) Maungawhau Volcano (Mt. Eden) - provides volcano height in 10x10 meter grids

```
tibble::as.tibble(volcano)
```

```
## # A tibble: 87 × 61
##       V1    V2    V3    V4    V5    V6    V7    V8    V9   V10   V11
V12   V13
##    <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl> <dbl>
##  1   100   100   101   101   101   101   101   100   100   100   101
101   102
##  2   101   101   102   102   102   102   102   101   101   101   102
102   103
##  3   102   102   103   103   103   103   103   102   102   102   103
103   104
##  4   103   103   104   104   104   104   104   103   103   103   103
104   104
##  5   104   104   105   105   105   105   105   104   104   103   104
104   105
##  6   105   105   105   106   106   106   106   105   105   104   104
105   105
##  7   105   106   106   107   107   107   107   106   106   105   105
106   106
##  8   106   107   107   108   108   108   108   107   107   106   106
107   108
##  9   107   108   108   109   109   109   109   108   108   107   108
108   110
## 10   108   109   109   110   110   110   110   109   109   108   110
110   113
## # … with 77 more rows, and 48 more variables: V14 <dbl>, V15 <dbl>,
V16 <dbl>,
## #   V17 <dbl>, V18 <dbl>, V19 <dbl>, V20 <dbl>, V21 <dbl>, V22 <dbl>,
## #   V23 <dbl>, V24 <dbl>, V25 <dbl>, V26 <dbl>, V27 <dbl>, V28 <dbl>,
## #   V29 <dbl>, V30 <dbl>, V31 <dbl>, V32 <dbl>, V33 <dbl>, V34 <dbl>,
## #   V35 <dbl>, V36 <dbl>, V37 <dbl>, V38 <dbl>, V39 <dbl>, V40 <dbl>,
## #   V41 <dbl>, V42 <dbl>, V43 <dbl>, V44 <dbl>, V45 <dbl>, V46 <dbl>,
## #   V47 <dbl>, V48 <dbl>, V49 <dbl>, V50 <dbl>, V51 <dbl>, V52 <dbl>,
…
```

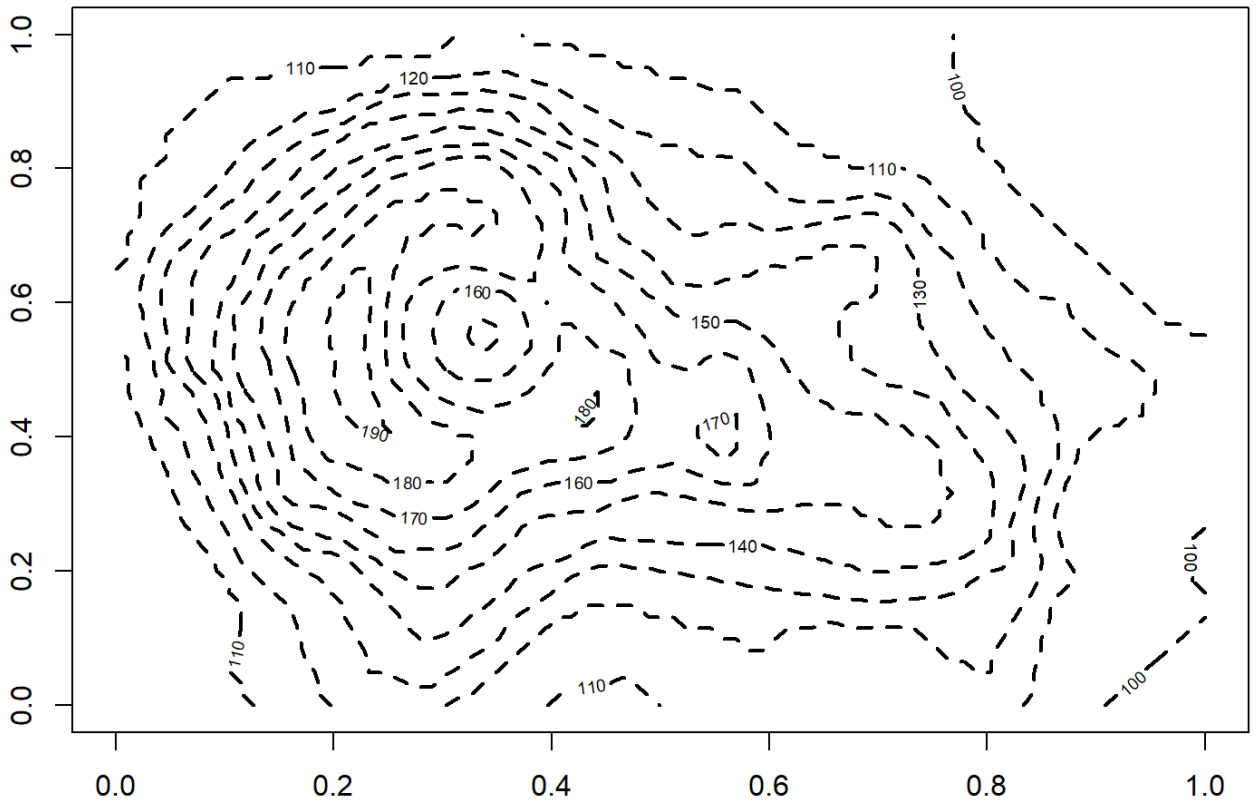
Using the basic plot

```
contour(volcano)
```



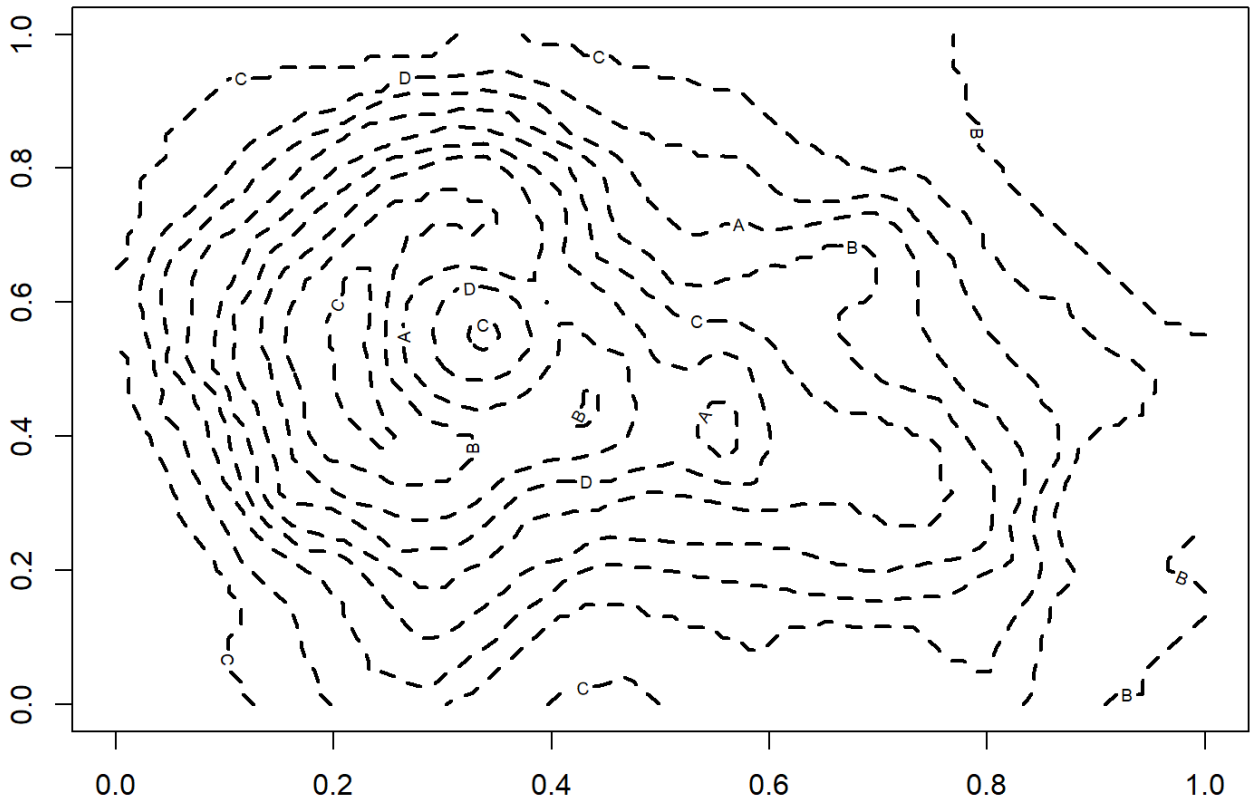
Adjusting size and style of contour lines

```
contour(volcano,
        lwd = 2,
        lty = 8)
```



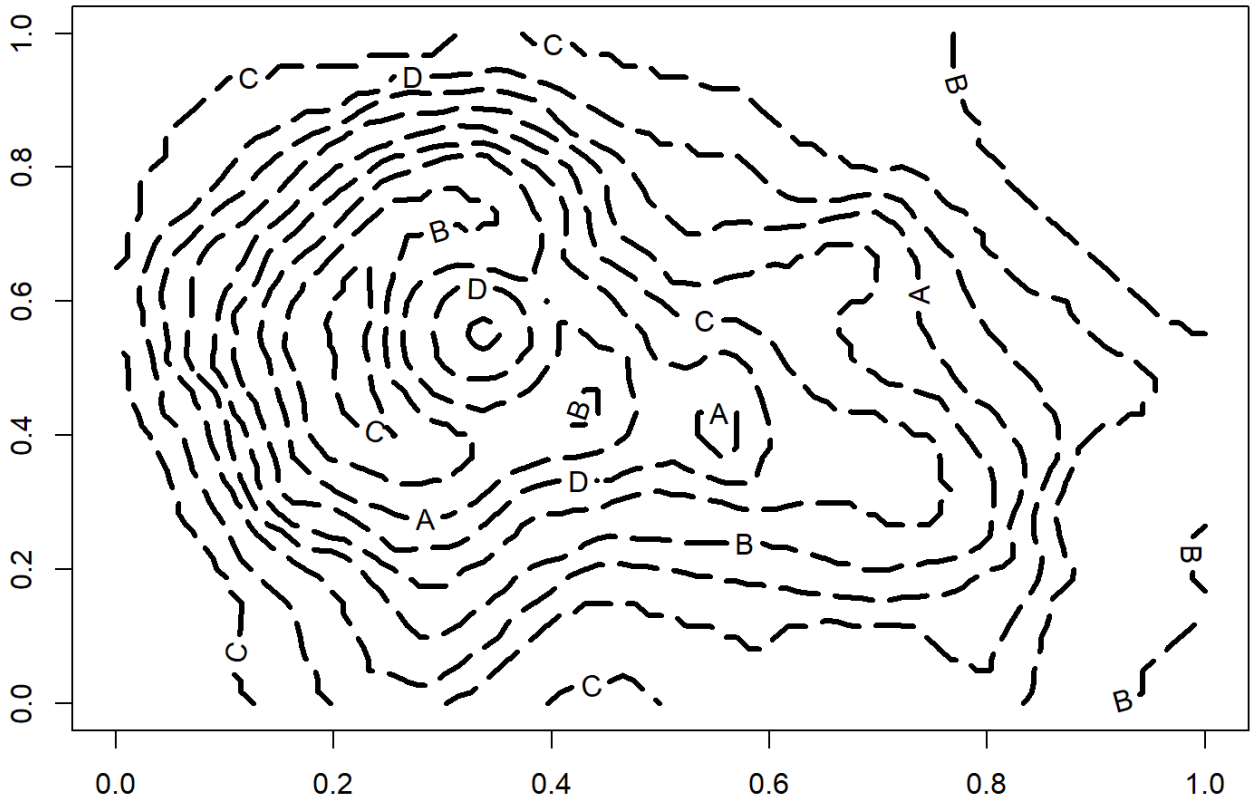
Assign different labels

```
contour(volcano,
        lwd = 2,
        lty = 8,
        labels = c("A","B","C","D"))
```



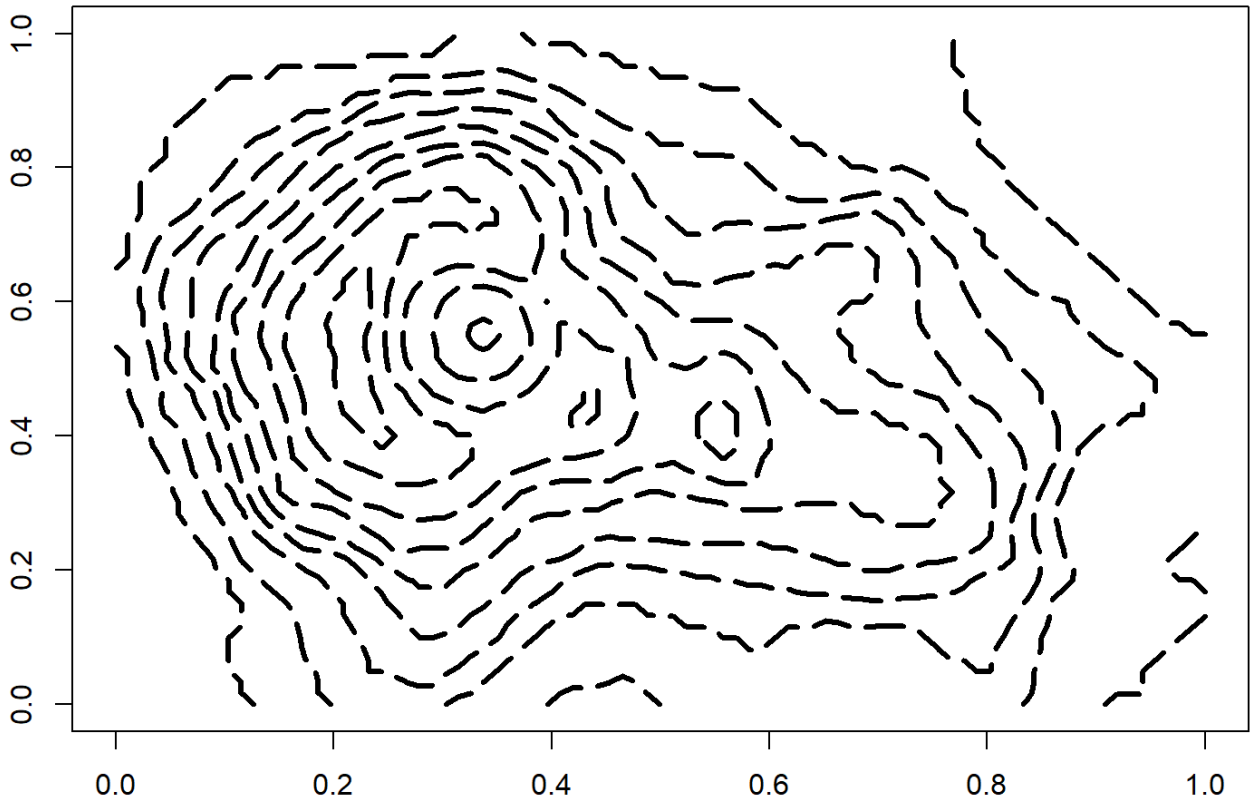
Changing contour label text size

```
contour(volcano,
        lwd = 3,
        lty = 5,
        labels = c("A","B","C","D"),
        labcex = 1)
```



Or removing the labels altogether

```
contour(volcano,
        lwd = 3,
        lty = 5,
        drawlabels = F)
```

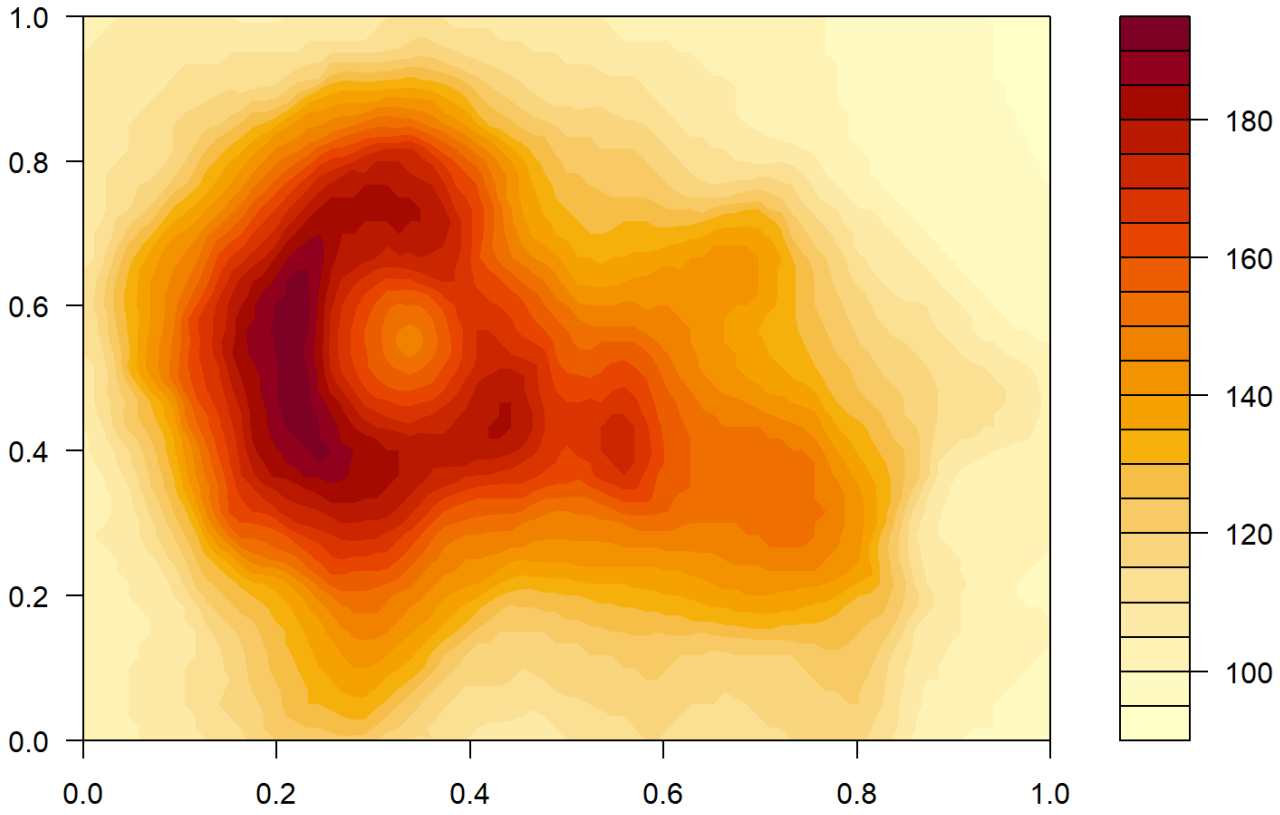


And removing the frame and axes

```
contour(volcano,
        lwd = 3,
        lty = 5,
        drawlabels = F,
        frame.plot = F,
        axes = F)
```

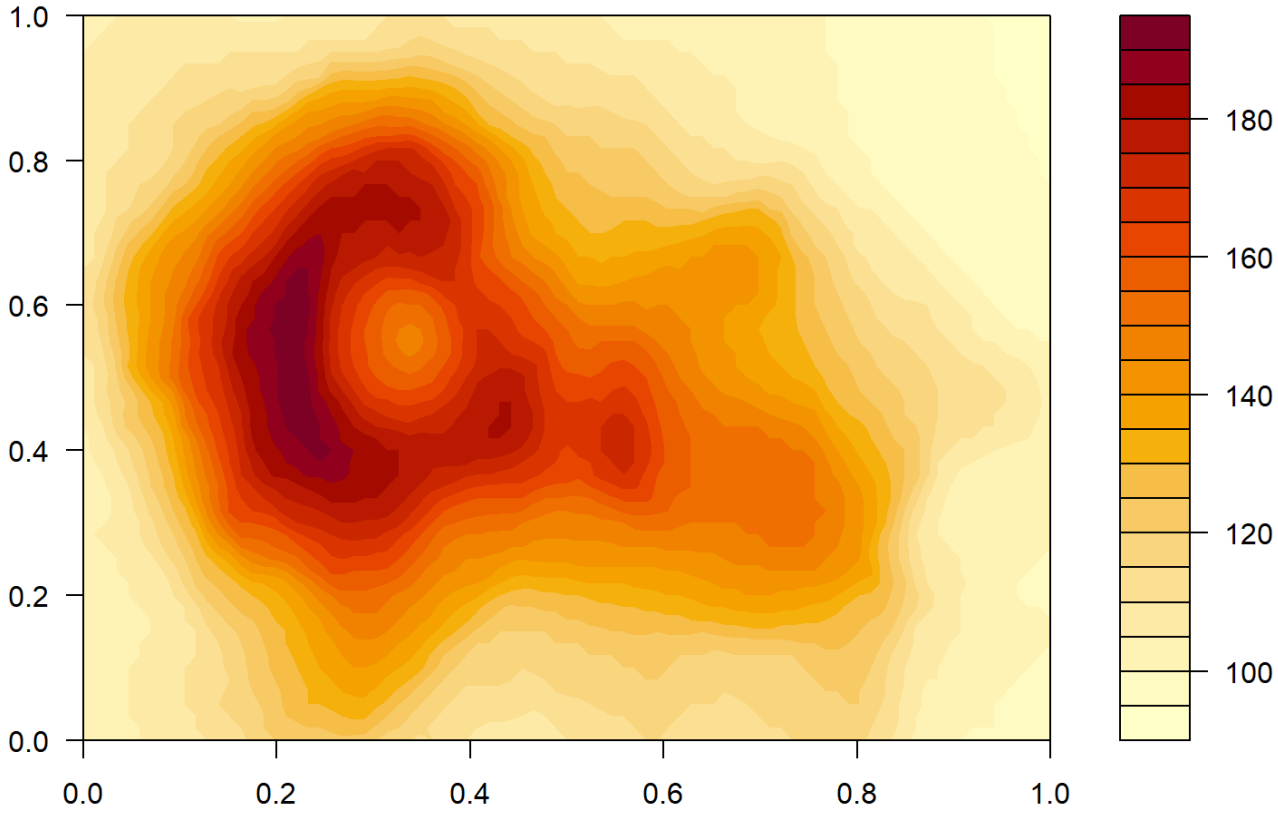
Can also create a filled contour mapping

```
filled.contour(volcano)
```



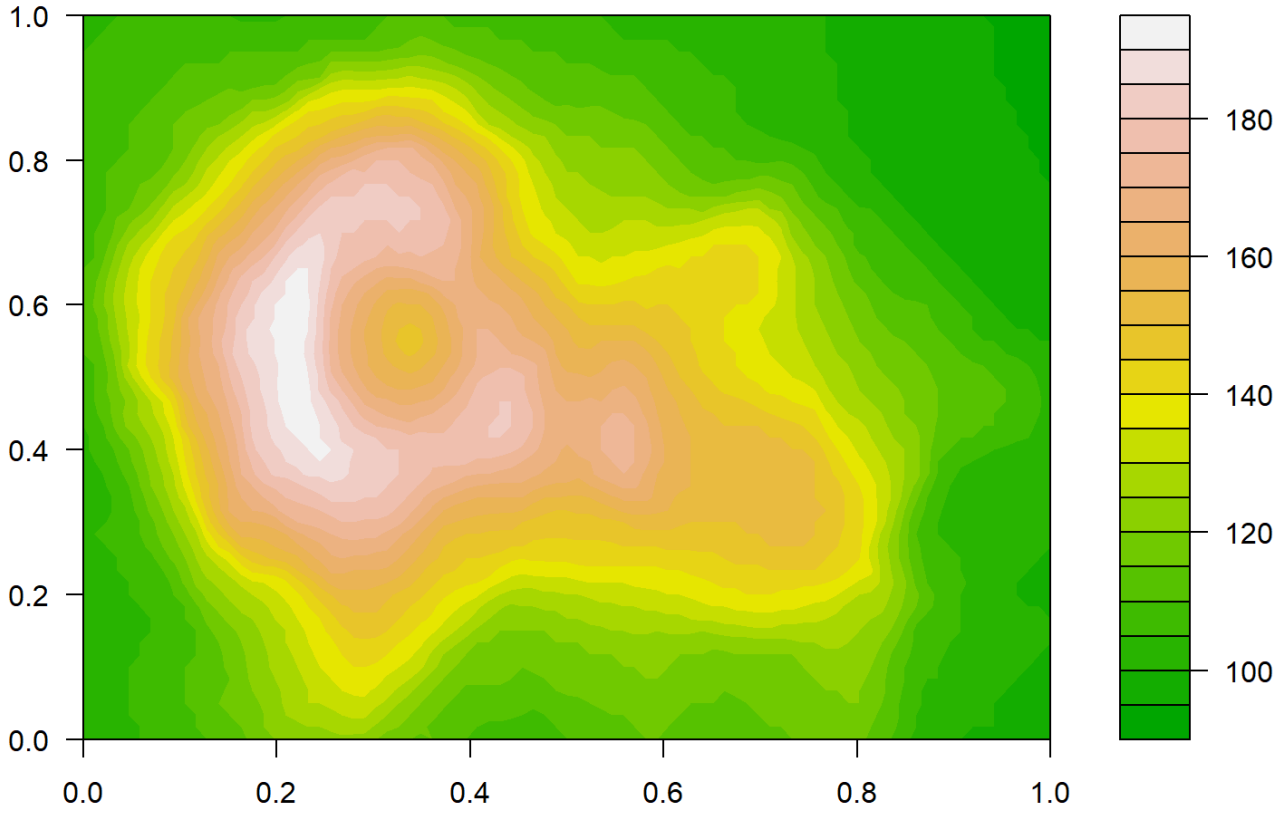
Define the number of levels

```
filled.contour(volcano,
               nlevels = 30)
```



Modify color schemes

```
filled.contour(volcano,
               nlevels = 30,
               color.palette = terrain.colors)
```



Adding contour line over the filled contour

```
filled.contour(volcano,
               nlevels = 30,
               color.palette = terrain.colors,
               plot.axes = {
                   axis(1)
                   axis(2)
                   contour(volcano, add = TRUE, lwd = 2)
               })
```