

# Sandbox

Eren Akgunduz

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## The data, wrangled and cleaned/tidied

```
library(tidyverse)
df <- read.csv("data/all.csv", stringsAsFactors = FALSE)
```

### Make sure it's clean

```
# Check for missing values
na_rows <- df[!complete.cases(df), ]
na_rows

## [1] Character Move onBlock plnCmd airmove followUp
## [7] projectile moveType health stun vgauge1 vgauge2
## [13] fDash bDash fWalk bWalk throwHurt throwRange
## [19] Damage Stun
## <0 rows> (or 0-length row.names)
```

### Validate before we really begin

```
c(nrow(df), ncol(df))

## [1] 1809 20

dim(df) # same thing

## [1] 1809 20

summary(df)

## Character Move onBlock plnCmd
## Length:1809 Length:1809 Min. : -95.000 Length:1809
## Class :character Class :character 1st Qu.: -8.000 Class :character
## Mode :character Mode :character Median : -3.000 Mode :character
## Mean : -4.429
## 3rd Qu.: 1.000
## Max. : 48.000
## airmove followUp projectile moveType
## Length:1809 Length:1809 Length:1809 Length:1809
## Class :character Class :character Class :character Class :character
## Mode :character Mode :character Mode :character Mode :character
##
##
##
```

```
##      health      stun      vgauge1      vgauge2
## Min.   : 900.0   Min.   : 900.0   Min.   :300.0   Min.   :600.0
## 1st Qu.: 950.0   1st Qu.: 950.0   1st Qu.:600.0   1st Qu.:600.0
## Median :1000.0   Median :1000.0   Median :600.0   Median :600.0
## Mean   : 987.8   Mean    : 997.2   Mean    :713.9   Mean    :663.5
## 3rd Qu.:1025.0   3rd Qu.:1050.0   3rd Qu.:900.0   3rd Qu.:600.0
## Max.   :1100.0   Max.    :1100.0   Max.    :900.0   Max.    :900.0
##      fDash      bDash      fWalk      bWalk
## Min.   :15.0    Min.   :21.00   Min.   :0.02200   Min.   :0.02000
## 1st Qu.:16.0    1st Qu.:21.00   1st Qu.:0.04000   1st Qu.:0.03000
## Median :17.0    Median :23.00   Median :0.04700   Median :0.03200
## Mean   :17.5    Mean    :22.99   Mean    :0.04377   Mean    :0.03214
## 3rd Qu.:18.0    3rd Qu.:24.00   3rd Qu.:0.05000   3rd Qu.:0.03500
## Max.   :25.0    Max.    :26.00   Max.    :0.05500   Max.    :0.04700
##      throwHurt      throwRange      Damage      Stun
## Min.   :0.2500   Min.   :0.8000   Min.   : 10.0   Min.   : 0.0
## 1st Qu.:0.2500   1st Qu.:0.8000   1st Qu.: 60.0   1st Qu.:100.0
## Median :0.2500   Median :0.8500   Median : 80.0   Median :120.0
## Mean   :0.2852   Mean    :0.8358   Mean    : 88.2   Mean    :122.2
## 3rd Qu.:0.3000   3rd Qu.:0.8500   3rd Qu.:100.0   3rd Qu.:150.0
## Max.   :0.4500   Max.    :1.0000   Max.    :400.0   Max.    :400.0
```

```
str(df)
```

```
## 'data.frame':   1809 obs. of  20 variables:
## $ Character : chr  "Abigail" "Abigail" "Abigail" "Abigail" ...
## $ Move      : chr  "Stand LP" "Stand MP" "Stand HP" "Stand LK" ...
## $ onBlock   : int   3 5 -3 3 0 -8 3 -2 -18 2 ...
## $ plnCmd    : chr  "LP" "MP" "HP" "LK" ...
## $ airmove   : chr  "False" "False" "False" "False" ...
## $ followUp  : chr  "False" "False" "False" "False" ...
## $ projectile: chr  "False" "False" "False" "False" ...
## $ moveType  : chr  "normal" "normal" "normal" "normal" ...
## $ health    : int  1100 1100 1100 1100 1100 1100 1100 1100 1100 1100 ...
## $ stun      : int  1050 1050 1050 1050 1050 1050 1050 1050 1050 1050 ...
## $ vgauge1   : int   900 900 900 900 900 900 900 900 900 900 ...
## $ vgauge2   : int   900 900 900 900 900 900 900 900 900 900 ...
## $ fDash     : int   25 25 25 25 25 25 25 25 25 25 ...
## $ bDash     : int   25 25 25 25 25 25 25 25 25 25 ...
## $ fWalk     : num  0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 ...
## $ bWalk     : num  0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 ...
## $ throwHurt : num  0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 ...
## $ throwRange: num  0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 ...
## $ Damage    : int   40 70 90 50 80 90 40 70 90 40 ...
## $ Stun      : int   70 100 150 70 100 150 70 100 150 70 ...
```

## Module 1: Information (description)

Descriptive stats, here mainly seeking to answer the question: how do the distributions look?

## Attacks for all characters

```
library(tidyverse)
df <- read.csv("data/all.csv", stringsAsFactors = FALSE)
```

### Character numerical features summary (averages)

```
# transpose so we print vertically
t(colMeans(df[9:18]))

##      health      stun  vgauge1  vgauge2    fDash    bDash      fWalk      bWalk
## [1,] 987.8386 997.236 713.9303 663.5158 17.50083 22.99281 0.04376739 0.03213941
##      throwHurt throwRange
## [1,] 0.2851816 0.8358322
```

### Attack categorical features summary tables

```
# define the function to create each summary table
summary_tb <- function(feature) {
  df %>%
    group_by({{ feature }}) %>%
    summarise(
      count = n(),
      average_damage = mean(Damage),
      average_stun = mean(Stun)
    ) %>%
    arrange(desc(average_damage))
}
```

```
# call for each feature with its name as argument
summary_tb(plnCmd)
```

```
## # A tibble: 545 x 4
##   plnCmd                count average_damage average_stun
##   <chr>                <int>         <dbl>         <dbl>
## 1 Hold & Release PP/KK Max      1           370           400
## 2 qcf,qcf+P (can hold)         3           353             0
## 3 qcb,qcb+K                    2           345             0
## 4 qcf,qcf+K                    8           339           44.5
## 5 qcb,qcb+P                    1           330             0
## 6 qcf,qcf+P                   24           330             0
## 7 qcf,qcf+P or qcb,qcb+P       1           330             0
## 8 b,f,b,f+P                   1           320             0
## 9 Hold & Release PP/KK lvl9    1           290           300
## 10 Hold & Release PP/KK lvl8   1           260           300
## # i 535 more rows
```

```
summary_tb(moveType)
```

```
## # A tibble: 11 x 4
##   moveType                count average_damage average_stun
##   <chr>                <int>         <dbl>         <dbl>
## 1 super                 40           334            8.9
## 2 command-grab          18           176           207.
## 3 throw                 22           131           168.
```

```
## 4 vtrigger      38      106.      124.
## 5 special       701      95.8      140.
## 6 movement-special 2      90      100
## 7 vskill       165      81.1      119.
## 8 taunt         1      70      100
## 9 normal       757      68.1      119.
## 10 vbreak       41      60       0
## 11 alpha        24      55       0
```

```
summary_tb(airmove)
```

```
## # A tibble: 2 x 4
##   airmove count average_damage average_stun
##   <chr>   <int>         <dbl>         <dbl>
## 1 True     178          90.3          137.
## 2 False  1631          88.0          121.
```

```
summary_tb(followUp)
```

```
## # A tibble: 2 x 4
##   followUp count average_damage average_stun
##   <chr>   <int>         <dbl>         <dbl>
## 1 True     258          96.6          135.
## 2 False  1551          86.8          120.
```

```
summary_tb(projectile)
```

```
## # A tibble: 2 x 4
##   projectile count average_damage average_stun
##   <chr>       <int>         <dbl>         <dbl>
## 1 False    1549          88.9          125.
## 2 True      260          83.9          105.
```

## Kernel density estimates (KDEs)

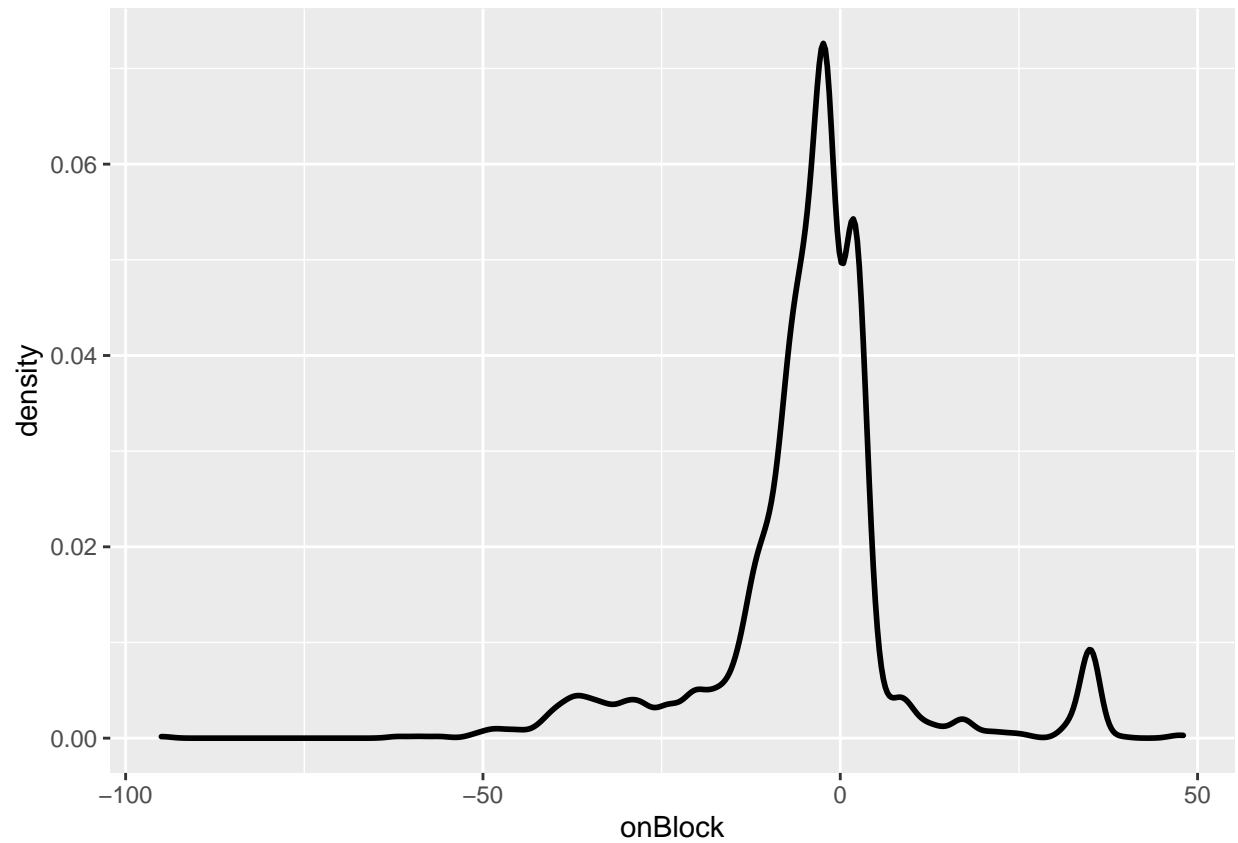
```
desc <- function(variable) {
  sprintf(
    "Median: %.2f | Mean: %.2f | Standard deviation: %.2f",
    median(variable),
    mean(variable),
    sd(variable)
  )
}
```

```
desc(df$onBlock)
```

```
## [1] "Median: -3.00 | Mean: -4.43 | Standard deviation: 13.31"
```

```
# user will be able to adjust bandwidth with slider
```

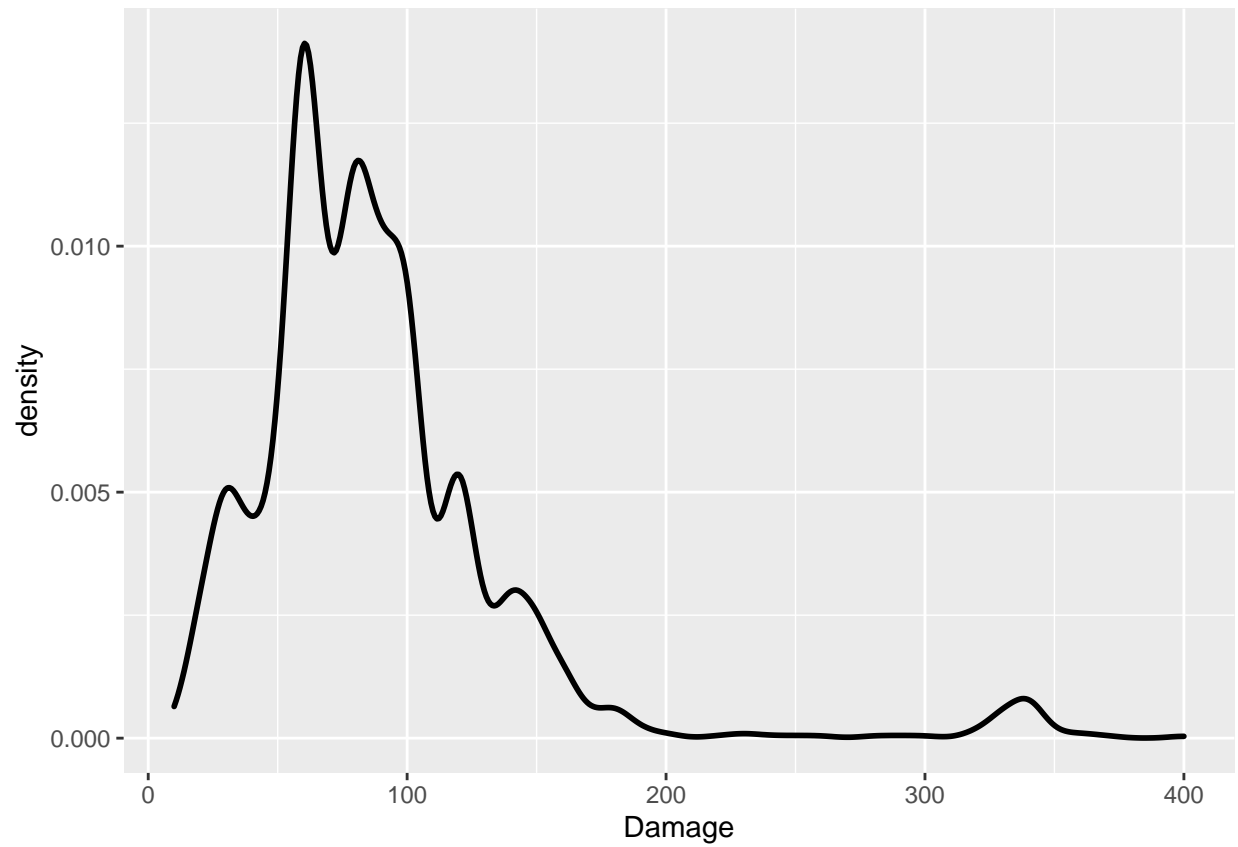
```
ggplot(df, aes(onBlock)) +
  geom_density(adjust = 1, linewidth = 1, lineend = "round")
```



```
desc(df$Damage)
```

```
## [1] "Median: 80.00 | Mean: 88.20 | Standard deviation: 51.90"
```

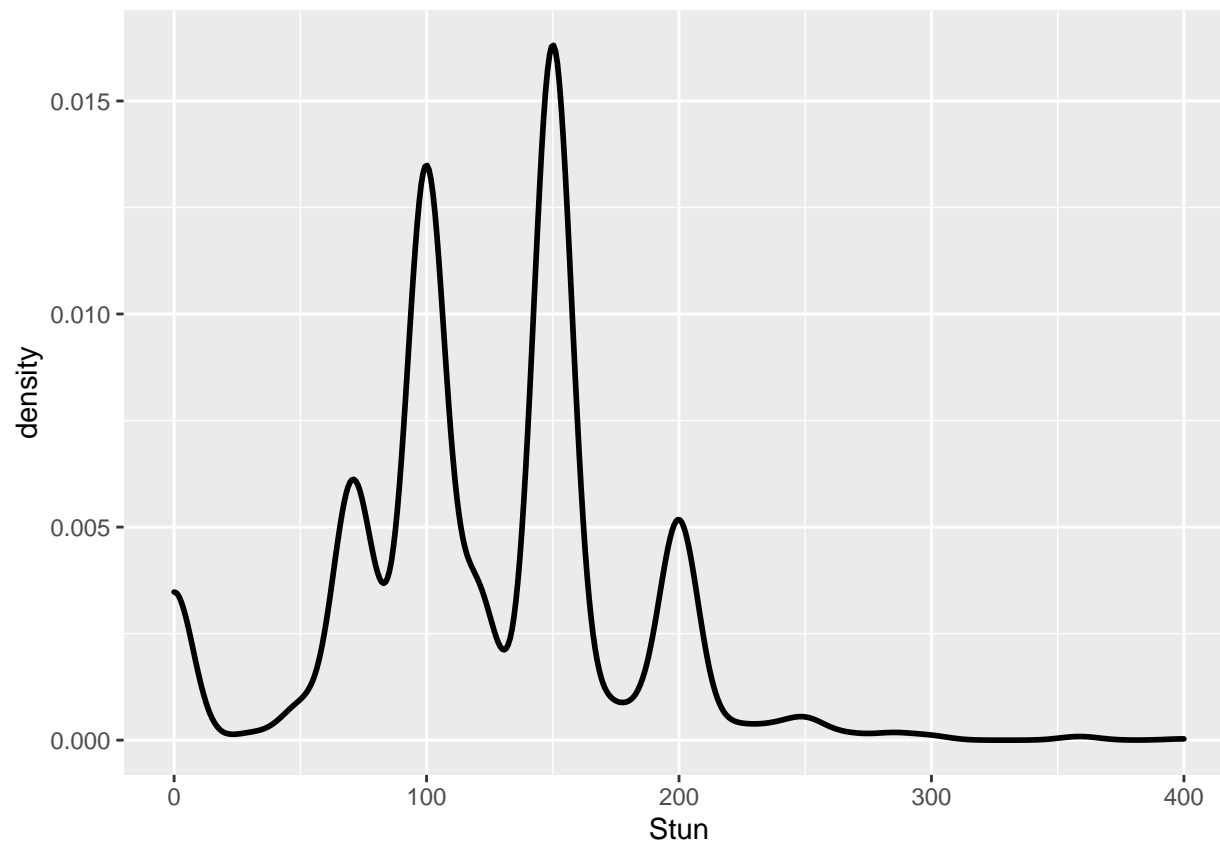
```
ggplot(df, aes(Damage)) +  
  geom_density(adjust = 1, linewidth = 1, lineend = "round")
```



```
desc(df$Stun)
```

```
## [1] "Median: 120.00 | Mean: 122.21 | Standard deviation: 55.35"
```

```
ggplot(df, aes(Stun)) +  
  geom_density(adjust = 1, linewidth = 1, lineend = "round")
```



## Attacks for each character

```
library(tidyverse)
```

## Putting it all together

```
character_info <- function(datafile, char_name, img_path, kde_color) {
  df <- read.csv(datafile, stringsAsFactors = FALSE)

  # h1(char_name)
  # Counterclockwise on grid starting here, top left: display image
  # img(src = img_path)

  # Bottom left: KDEs
  desc <- function(variable) {
    sprintf(
      "Median: %.2f | Mean: %.2f | Standard deviation: %.2f",
      median(variable),
      mean(variable),
      sd(variable)
    )
  }

  print(desc(df$onBlock))
  # user will be able to adjust bandwidth with slider
```

```

(ggplot(df, aes(onBlock)) +
  geom_density(
    alpha = 0.2, adjust = 1, linewidth = 1.6,
    lineend = "round", fill = kde_color, color = kde_color
  ))

print(desc(df$Damage))
(ggplot(df, aes(Damage)) +
  geom_density(
    alpha = 0.2, adjust = 1, linewidth = 1.6,
    lineend = "round", fill = kde_color, color = kde_color
  ))

print(desc(df$Stun))
(ggplot(df, aes(Stun)) +
  geom_density(
    alpha = 0.2, adjust = 1, linewidth = 1.6,
    lineend = "round", fill = kde_color, color = kde_color
  ))

# Bottom right: all attack attributes (9 columns)
print(head(df[c(1:7, 18:19)])) # head only temporary to see if working

# Top right: all character facts (10 columns but printed row-wise)
print(t(df[1, 8:17])) # same idea as earlier
}

```

Let's test em out

```

# used Pika app to pick colors from images
character_info(
  "data/characters/abigail.csv",
  "Abigail",
  "img/abigail.png",
  "#af33b4"
)

```

```

## [1] "Median: -6.00 | Mean: -7.92 | Standard deviation: 16.17"
## [1] "Median: 85.00 | Mean: 94.87 | Standard deviation: 56.00"
## [1] "Median: 141.50 | Mean: 123.32 | Standard deviation: 59.13"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False   False   False   normal    40   70
## 2 Stand MP      5      MP  False   False   False   normal    70  100
## 3 Stand HP     -3      HP  False   False   False   normal    90  150
## 4 Stand LK      3      LK  False   False   False   normal    50   70
## 5 Stand MK      0      MK  False   False   False   normal    80  100
## 6 Stand HK     -8      HK  False   False   False   normal    90  150
##
##      1
## health    1100.000
## stun      1050.000
## vgaugel    900.000
## vgaugel    900.000
## fDash      25.000
## bDash      25.000

```



```
## fWalk      0.032
## bWalk      0.025
## throwHurt  0.400
## throwRange 0.900
```

```
character_info(
  "data/characters/akuma.csv",
  "Akuma",
  "img/akuma.png",
  "#a52e28"
)
```

```
## [1] "Median: -2.00 | Mean: -2.03 | Standard deviation: 15.99"
## [1] "Median: 80.00 | Mean: 90.28 | Standard deviation: 43.72"
## [1] "Median: 120.00 | Mean: 127.09 | Standard deviation: 49.38"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False   normal    30   70
## 2 Stand MP      1      MP  False    False    False   normal    60  100
## 3 Stand HP     -5      HP  False    False    False   normal    80  150
## 4 Stand LK      1      LK  False    False    False   normal    30   70
## 5 Stand MK     -4      MK  False    False    False   normal    60  100
## 6 Stand HK     -2      HK  False    False    False   normal    80  120
##      1
## health      900.000
## stun        900.000
## vgauge1     900.000
## vgauge2     600.000
## fDash       16.000
## bDash       21.000
## fWalk       0.052
## bWalk       0.036
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/alex.csv",
  "Alex",
  "img/alex.png",
  "#48683d"
)
```

```
## [1] "Median: -2.00 | Mean: 4.83 | Standard deviation: 20.29"
## [1] "Median: 100.00 | Mean: 111.46 | Standard deviation: 59.40"
## [1] "Median: 150.00 | Mean: 153.17 | Standard deviation: 61.74"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False   normal    30   70
## 2 Stand MP      3      MP  False    False    False   normal    60  100
## 3 Stand HP     -3      HP  False    False    False   normal    90  150
## 4 Stand LK      0      LK  False    False    False   normal    40   70
## 5 Stand MK     -2      MK  False    False    False   normal    70  100
## 6 Stand HK     -4      HK  False    False    False   normal   100  150
##      1
## health     1050.000
## stun       1075.000
## vgauge1     600.000
## vgauge2     600.000
```

```
## fDash      19.000
## bDash      24.000
## fWalk      0.040
## bWalk      0.035
## throwHurt  0.450
## throwRange 1.000
```

```
character_info(
  "data/characters/balrog.csv",
  "Balrog",
  "img/balrog.png",
  "#235dbb"
)
```

```
## [1] "Median: -2.00 | Mean: -4.10 | Standard deviation: 6.92"
## [1] "Median: 100.00 | Mean: 112.30 | Standard deviation: 66.97"
## [1] "Median: 150.00 | Mean: 155.40 | Standard deviation: 74.45"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False    False    False   normal    30   70
## 2 Stand MP      0      MP  False    False    False   normal    70  100
## 3 Stand HP     -3      HP  False    False    False   normal    80  150
## 4 Stand LK      1      LK  False    False    False   normal    30   70
## 5 Stand MK      2      MK  False    False    False   normal    60  100
## 6 Stand HK      3      HK  False    False    False   normal    80  150
##      1
## health      1025.000
## stun        1050.000
## vgauge1      900.000
## vgauge2      600.000
## fDash        17.000
## bDash        24.000
## fWalk         0.048
## bWalk         0.030
## throwHurt     0.350
## throwRange    0.850
```

```
character_info(
  "data/characters/birdie.csv",
  "Birdie",
  "img/birdie.png",
  "#d7a23e"
)
```

```
## [1] "Median: -5.00 | Mean: -5.91 | Standard deviation: 10.19"
## [1] "Median: 80.00 | Mean: 93.36 | Standard deviation: 62.02"
## [1] "Median: 120.00 | Mean: 121.67 | Standard deviation: 74.59"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False    False    False   normal    40   90
## 2 Stand MP      1      MP  False    False    False   normal    60  120
## 3 Stand HP     -6      HP  False    False    False   normal    90  150
## 4 Stand LK      3      LK  False    False    False   normal    30   90
## 5 Stand MK     -2      MK  False    False    False   normal    60  120
## 6 Stand HK      0      HK  False    False    False   normal   100  150
##      1
## health      1050.000
## stun        1000.000
```

```
## vgaugel      900.000
## vgaugel2     600.000
## fDash        23.000
## bDash        26.000
## fWalk        0.031
## bWalk        0.024
## throwHurt    0.300
## throwRange   0.900
```

```
character_info(
  "data/characters/blanka.csv",
  "Blanka",
  "img/blanka.png",
  "#b36732"
)
```

```
## [1] "Median: -3.00 | Mean: -8.08 | Standard deviation: 13.60"
## [1] "Median: 80.00 | Mean: 90.67 | Standard deviation: 52.14"
## [1] "Median: 150.00 | Mean: 125.36 | Standard deviation: 45.45"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False      False      False   normal    30   70
## 2 Stand MP      0      MP  False      False      False   normal    60  100
## 3 Stand HP     -6      HP  False      False      False   normal    80  150
## 4 Stand LK      3      LK  False      False      False   normal    30   70
## 5 Stand MK      2      MK  False      False      False   normal    60  100
## 6 Stand HK     -4      HK  False      False      False   normal    80  150
##      1
## health      1025.000
## stun        1050.000
## vgaugel      600.000
## vgaugel2     900.000
## fDash        16.000
## bDash        24.000
## fWalk        0.043
## bWalk        0.032
## throwHurt    0.250
## throwRange   0.800
```

```
character_info(
  "data/characters/cammy.csv",
  "Cammy",
  "img/cammy.png",
  "#67b600"
)
```

```
## [1] "Median: -2.00 | Mean: -3.80 | Standard deviation: 17.44"
## [1] "Median: 80.00 | Mean: 89.55 | Standard deviation: 54.01"
## [1] "Median: 120.00 | Mean: 126.25 | Standard deviation: 62.17"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False      False      False   normal    30   70
## 2 Stand MP      3      MP  False      False      False   normal    60  100
## 3 Stand HP     -3      HP  False      False      False   normal    80  150
## 4 Stand LK      1      LK  False      False      False   normal    40   70
## 5 Stand MK     -2      MK  False      False      False   normal    60  100
## 6 Stand HK     -2      HK  False      False      False   normal    90  150
##      1
```

```
## health      925.00
## stun        925.00
## vgauge1     600.00
## vgauge2     600.00
## fDash       16.00
## bDash       21.00
## fWalk       0.05
## bWalk       0.04
## throwHurt   0.25
## throwRange  0.80
```

```
character_info(
  "data/characters/chun-li.csv",
  "Chun-Li",
  "img/chun-li.png",
  "#37659b"
)
```

```
## [1] "Median: -3.00 | Mean: -2.14 | Standard deviation: 11.92"
## [1] "Median: 80.00 | Mean: 89.65 | Standard deviation: 51.25"
## [1] "Median: 120.00 | Mean: 120.47 | Standard deviation: 55.12"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False   normal    30   70
## 2 Stand MP      3      MP  False    False    False   normal    60  100
## 3 Stand HP     -4      HP  False    False    False   normal    80  150
## 4 Stand LK     -3      LK  False    False    False   normal    40   70
## 5 Stand MK     -2      MK  False    False    False   normal    70  100
## 6 Stand HK     -2      HK  False    False    False   normal    90  150
##
##      1
## health      975.0000
## stun       1000.0000
## vgauge1     600.0000
## vgauge2     900.0000
## fDash       15.0000
## bDash       21.0000
## fWalk       0.0535
## bWalk       0.0340
## throwHurt   0.3511
## throwRange  0.8461
```

```
character_info(
  "data/characters/cody.csv",
  "Cody",
  "img/cody.png",
  "#521f15"
)
```

```
## [1] "Median: -6.00 | Mean: -5.72 | Standard deviation: 7.83"
## [1] "Median: 80.00 | Mean: 90.94 | Standard deviation: 55.26"
## [1] "Median: 150.00 | Mean: 131.81 | Standard deviation: 59.98"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      1      LP  False    False    False   normal    30   70
## 2 Stand MP      0      MP  False    False    False   normal    60  100
## 3 Stand HP    -10      HP  False    False    False   normal   120  170
## 4 Stand LK      3      LK  False    False    False   normal    40   70
## 5 Stand MK      3      MK  False    False    False   normal    60  100
```

```
## 6 Stand HK      -4      HK   False   False      False   normal      80  150
##
## health      1025.0000
## stun        1050.0000
## vgauge1      600.0000
## vgauge2      600.0000
## fDash        17.0000
## bDash        23.0000
## fWalk        0.0470
## bWalk        0.0289
## throwHurt    0.2500
## throwRange   0.8000
```

```
character_info(
  "data/characters/dan.csv",
  "Dan",
  "img/dan.png",
  "#bf6072"
)
```

```
## [1] "Median: -2.00 | Mean: -4.74 | Standard deviation: 13.89"
## [1] "Median: 80.00 | Mean: 81.28 | Standard deviation: 57.09"
## [1] "Median: 100.00 | Mean: 92.56 | Standard deviation: 39.38"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal      30  50
## 2 Stand MP      3      MP   False   False      False   normal      60  80
## 3 Stand HP     -2      HP   False   False      False   normal      70 120
## 4 Stand LK      0      LK   False   False      False   normal      30  50
## 5 Stand MK     -2      MK   False   False      False   normal      60  80
## 6 Stand HK     -4      HK   False   False      False   normal      90 120
##
## health      1025.000
## stun        950.000
## vgauge1      300.000
## vgauge2      600.000
## fDash        16.000
## bDash        21.000
## fWalk        0.047
## bWalk        0.032
## throwHurt    0.250
## throwRange   0.800
```

```
character_info(
  "data/characters/dhalsim.csv",
  "Dhalsim",
  "img/dhalsim.png",
  "#e0602b"
)
```

```
## [1] "Median: 0.00 | Mean: 0.61 | Standard deviation: 9.35"
## [1] "Median: 70.00 | Mean: 92.93 | Standard deviation: 79.32"
## [1] "Median: 100.00 | Mean: 107.80 | Standard deviation: 56.55"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal      30  70
## 2 Stand MP     -4      MP   False   False      False   normal      60 100
## 3 Stand HP     -6      HP   False   False      False   normal      90 150
```

```
## 4 Stand LK      2      LK  False  False  False  normal  40  70
## 5 Stand MK     -4      MK  False  False  False  normal  50 100
## 6 Stand HK     -4      HK  False  False  False  normal  90 150
##
## health      950.000
## stun       950.000
## vgauge1     600.000
## vgauge2     600.000
## fDash       21.000
## bDash       25.000
## fWalk       0.022
## bWalk       0.020
## throwHurt    0.250
## throwRange   0.850
```

```
character_info(
  "data/characters/e_honda.csv",
  "E. Honda",
  "img/e_honda.png",
  "#5197a3"
)
```

```
## [1] "Median: -2.00 | Mean: -3.06 | Standard deviation: 6.85"
## [1] "Median: 95.00 | Mean: 95.25 | Standard deviation: 53.83"
## [1] "Median: 150.00 | Mean: 131.56 | Standard deviation: 52.68"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False  False  False  normal  40  90
## 2 Stand MP      2      MP  False  False  False  normal  70 120
## 3 Stand HP     -7      HP  False  False  False  normal  85 150
## 4 Stand LK      2      LK  False  False  False  normal  40  90
## 5 Stand MK      4      MK  False  False  False  normal  60 120
## 6 Stand HK     -1      HK  False  False  False  normal  85 150
##
## health     1050.000
## stun      1075.000
## vgauge1    900.000
## vgauge2    600.000
## fDash      20.000
## bDash      24.000
## fWalk      0.044
## bWalk      0.027
## throwHurt   0.250
## throwRange  0.900
```

```
character_info(
  "data/characters/ed.csv",
  "Ed",
  "img/ed.png",
  "#51bcd0"
)
```

```
## [1] "Median: -2.00 | Mean: -2.43 | Standard deviation: 13.20"
## [1] "Median: 80.00 | Mean: 84.00 | Standard deviation: 57.21"
## [1] "Median: 100.00 | Mean: 109.83 | Standard deviation: 52.83"
##      Move onBlock      plnCmd airmove followUp projectile moveType
## 1      Stand LP      3      LP  False  False  False  normal
```

```

## 2      Stand MP      3      MP False False False normal
## 3      Stand HP     -2      HP False False False normal
## 4 Stand HP (release) -2 HP (release) False False False normal
## 5      Stand LK      1      LK False False False normal
## 6      Stand MK      2      MK False False False normal
##      Damage Stun
## 1      30  70
## 2      60 100
## 3      90 150
## 4      90 150
## 5      30  70
## 6      70 100
##
##      1
## health      1025.000
## stun        1050.000
## vgauge1      600.000
## vgauge2      900.000
## fDash        16.000
## bDash        23.000
## fWalk         0.047
## bWalk         0.034
## throwHurt     0.250
## throwRange    0.800

```

```

character_info(
  "data/characters/f_a_n_g.csv",
  "F.A.N.G",
  "img/f_a_n_g.png",
  "#3040a0"
)

```

```

## [1] "Median: -2.00 | Mean: -3.50 | Standard deviation: 11.15"
## [1] "Median: 60.00 | Mean: 61.83 | Standard deviation: 26.08"
## [1] "Median: 100.00 | Mean: 123.63 | Standard deviation: 48.46"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP False False False normal 30 70
## 2 Stand MP     -3      MP False False False normal 60 100
## 3 Stand HP     -2      HP False False False normal 90 150
## 4 Stand LK      3      LK False False False normal 40 70
## 5 Stand MK      1      MK False False False normal 60 100
## 6 Stand HK      1      HK False False False normal 115 115
##
##      1
## health      975.000
## stun        1000.000
## vgauge1      600.000
## vgauge2      900.000
## fDash        20.000
## bDash        24.000
## fWalk         0.032
## bWalk         0.028
## throwHurt     0.250
## throwRange    0.850

```

```

character_info(
  "data/characters/falke.csv",

```

```

    "Falke",
    "img/falke.png",
    "#191b44"
)

## [1] "Median: -3.00 | Mean: -6.71 | Standard deviation: 14.28"
## [1] "Median: 70.00 | Mean: 84.14 | Standard deviation: 59.35"
## [1] "Median: 110.00 | Mean: 118.93 | Standard deviation: 51.88"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False   normal    30   70
## 2 Stand MP      3      MP  False    False    False   normal    60  100
## 3 Stand HP     -3      HP  False    False    False   normal    80  150
## 4 Stand LK      3      LK  False    False    False   normal    40   70
## 5 Stand MK     -2      MK  False    False    False   normal    60  100
## 6 Stand HK     -4      HK  False    False    False   normal    80  150
##
##      1
## health      975.00
## stun        1000.00
## vgauge1      600.00
## vgauge2      600.00
## fDash        20.00
## bDash        25.00
## fWalk         0.04
## bWalk         0.03
## throwHurt     0.25
## throwRange    0.85

character_info(
  "data/characters/g.csv",
  "G",
  "img/g.png",
  "#3d453a"
)

## [1] "Median: -4.50 | Mean: -4.86 | Standard deviation: 4.72"
## [1] "Median: 80.00 | Mean: 83.80 | Standard deviation: 43.70"
## [1] "Median: 100.00 | Mean: 114.60 | Standard deviation: 35.70"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False    False    False   normal    30   70
## 2 Stand MP      3      MP  False    False    False   normal    60  100
## 3 Stand HP     -3      HP  False    False    False   normal    80  150
## 4 Stand LK      1      LK  False    False    False   normal    40   70
## 5 Stand MK     -2      MK  False    False    False   normal    60  100
## 6 Stand HK     -5      HK  False    False    False   normal    80  100
##
##      1
## health     1025.0000
## stun       1050.0000
## vgauge1     900.0000
## vgauge2     600.0000
## fDash       19.0000
## bDash       25.0000
## fWalk       0.0377
## bWalk       0.0300
## throwHurt   0.2500
## throwRange  0.8500

```



```

character_info(
  "data/characters/gill.csv",
  "Gill",
  "img/gill.png",
  "#bf423b"
)

```

```

## [1] "Median: -4.00 | Mean: -4.00 | Standard deviation: 6.82"
## [1] "Median: 70.00 | Mean: 78.47 | Standard deviation: 48.58"
## [1] "Median: 120.00 | Mean: 108.00 | Standard deviation: 38.91"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False    normal    30   70
## 2 Stand MP      3      MP  False    False    False    normal    60  100
## 3 Stand HP     -2      HP  False    False    False    normal    90  120
## 4 Stand LK      3      LK  False    False    False    normal    30   70
## 5 Stand MK     -4      MK  False    False    False    normal    70  100
## 6 Stand HK     -4      HK  False    False    False    normal    80  150
##
##      1
## health    1025.0000
## stun      1050.0000
## vgauge1    600.0000
## vgauge2    600.0000
## fDash      16.0000
## bDash      25.0000
## fWalk       0.0412
## bWalk       0.0273
## throwHurt   0.2500
## throwRange  0.8500

```

```

character_info(
  "data/characters/guile.csv",
  "Guile",
  "img/guile.png",
  "#597c00"
)

```

```

## [1] "Median: -3.00 | Mean: -4.83 | Standard deviation: 12.68"
## [1] "Median: 77.50 | Mean: 80.80 | Standard deviation: 48.49"
## [1] "Median: 100.00 | Mean: 116.80 | Standard deviation: 60.22"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False    False    False    normal    30   70
## 2 Stand MP      3      MP  False    False    False    normal    60  100
## 3 Stand HP     -4      HP  False    False    False    normal    80  150
## 4 Stand LK      2      LK  False    False    False    normal    30   70
## 5 Stand MK     -1      MK  False    False    False    normal    70  100
## 6 Stand HK     -3      HK  False    False    False    normal    80  150
##
##      1
## health     975.000
## stun       975.000
## vgauge1    900.000
## vgauge2    600.000
## fDash      18.000
## bDash      25.000
## fWalk       0.052
## bWalk       0.033

```

```
## throwHurt    0.250
## throwRange   0.800
```

```
character_info(
  "data/characters/ibuki.csv",
  "Ibuki",
  "img/ibuki.png",
  "#4b1d40"
)
```

```
## [1] "Median: -3.00 | Mean: -5.80 | Standard deviation: 8.71"
## [1] "Median: 80.00 | Mean: 85.78 | Standard deviation: 52.49"
## [1] "Median: 107.50 | Mean: 117.62 | Standard deviation: 63.97"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      1      LP  False    False    False   normal    30   70
## 2 Stand MP      2      MP  False    False    False   normal    60  100
## 3 Stand HP     -5      HP  False    False    False   normal    80  150
## 4 Stand LK     -2      LK  False    False    False   normal    30   70
## 5 Stand MK      2      MK  False    False    False   normal    60  100
## 6 Stand HK     -2      HK  False    False    False   normal    90  150
##      1
## health    925.000
## stun      950.000
## vgauge1   900.000
## vgauge2   600.000
## fDash     16.000
## bDash     21.000
## fWalk      0.052
## bWalk      0.034
## throwHurt  0.250
## throwRange 0.800
```

```
character_info(
  "data/characters/juri.csv",
  "Juri",
  "img/juri.png",
  "#983190"
)
```

```
## [1] "Median: -5.00 | Mean: -7.41 | Standard deviation: 9.18"
## [1] "Median: 80.00 | Mean: 80.16 | Standard deviation: 52.33"
## [1] "Median: 150.00 | Mean: 117.57 | Standard deviation: 56.19"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False   normal    30   70
## 2 Stand MP     -1      MP  False    False    False   normal    60  100
## 3 Stand HP     -6      HP  False    False    False   normal    80  150
## 4 Stand LK      1      LK  False    False    False   normal    30   70
## 5 Stand MK     -7      MK  False    False    False   normal    70  100
## 6 Stand HK     -7      HK  False    False    False   normal    80  150
##      1
## health    975.000
## stun     1000.000
## vgauge1   600.000
## vgauge2   600.000
## fDash     16.000
## bDash     24.000
```

```
## fWalk      0.050
## bWalk      0.033
## throwHurt  0.250
## throwRange 0.800
```

```
character_info(
  "data/characters/kage.csv",
  "Kage",
  "img/kage.png",
  "#553fad"
)
```

```
## [1] "Median: -4.00 | Mean: -5.35 | Standard deviation: 13.89"
## [1] "Median: 70.00 | Mean: 80.93 | Standard deviation: 43.49"
## [1] "Median: 100.00 | Mean: 115.43 | Standard deviation: 47.50"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False    False    False   normal    30   70
## 2 Stand MP     -1      MP  False    False    False   normal    60  100
## 3 Stand HP     -5      HP  False    False    False   normal    80  120
## 4 Stand LK      1      LK  False    False    False   normal    30   70
## 5 Stand MK     -3      MK  False    False    False   normal    70  100
## 6 Stand HK     -2      HK  False    False    False   normal    80  150
##      1
## health      925.000
## stun        950.000
## vgauge1     600.000
## vgauge2     900.000
## fDash       16.000
## bDash       21.000
## fWalk       0.052
## bWalk       0.035
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/karin.csv",
  "Karin",
  "img/karin.png",
  "#e93824"
)
```

```
## [1] "Median: -4.00 | Mean: -3.92 | Standard deviation: 8.59"
## [1] "Median: 70.00 | Mean: 81.50 | Standard deviation: 52.65"
## [1] "Median: 100.00 | Mean: 111.00 | Standard deviation: 50.17"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False   normal    30   70
## 2 Stand MP      1      MP  False    False    False   normal    60  100
## 3 Stand HP     -5      HP  False    False    False   normal    80  150
## 4 Stand LK      2      LK  False    False    False   normal    40   70
## 5 Stand MK     -4      MK  False    False    False   normal    60  100
## 6 Stand HK     -4      HK  False    False    False   normal    80  150
##      1
## health      925.000
## stun        950.000
## vgauge1     600.000
## vgauge2     600.000
```

```
## fDash      16.000
## bDash      21.000
## fWalk       0.049
## bWalk       0.036
## throwHurt   0.250
## throwRange  0.850
```

```
character_info(
  "data/characters/ken.csv",
  "Ken",
  "img/ken.png",
  "#ff0000"
)
```

```
## [1] "Median: -4.00 | Mean: -9.54 | Standard deviation: 14.74"
## [1] "Median: 70.00 | Mean: 82.68 | Standard deviation: 53.02"
## [1] "Median: 100.00 | Mean: 112.73 | Standard deviation: 48.36"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False   normal    30   70
## 2 Stand MP      2      MP  False    False    False   normal    60  100
## 3 Stand HP     -3      HP  False    False    False   normal    80  150
## 4 Stand LK     -1      LK  False    False    False   normal    30   70
## 5 Stand MK     -2      MK  False    False    False   normal    60  100
## 6 Stand HK     -4      HK  False    False    False   normal    80  150
##
##      1
## health    1025.000
## stun      1050.000
## vgauge1    900.000
## vgauge2    600.000
## fDash      15.000
## bDash      24.000
## fWalk       0.050
## bWalk       0.035
## throwHurt   0.250
## throwRange  0.800
```

```
character_info(
  "data/characters/kolin.csv",
  "Kolin",
  "img/kolin.png",
  "#394057"
)
```

```
## [1] "Median: -2.00 | Mean: -0.94 | Standard deviation: 12.04"
## [1] "Median: 70.00 | Mean: 80.06 | Standard deviation: 48.53"
## [1] "Median: 100.00 | Mean: 133.94 | Standard deviation: 69.34"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False    False    False   normal    30   70
## 2 Stand MP      2      MP  False    False    False   normal    60  100
## 3 Stand HP     -4      HP  False    False    False   normal    80  150
## 4 Stand LK     -2      LK  False    False    False   normal    40   70
## 5 Stand MK     -2      MK  False    False    False   normal    50  100
## 6 Stand HK     -2      HK  False    False    False   normal    80  150
##
##      1
## health    1.00e+03
## stun      1.00e+03
```

```
## vgaugel      6.00e+02
## vgaugel2     6.00e+02
## fDash        1.70e+01
## bDash        2.10e+01
## fWalk        4.13e-02
## bWalk        3.25e-02
## throwHurt    3.50e-01
## throwRange   8.50e-01
```

```
character_info(
  "data/characters/laura.csv",
  "Laura",
  "img/laura.png",
  "#80dc00"
)
```

```
## [1] "Median: 2.00 | Mean: 5.78 | Standard deviation: 14.67"
## [1] "Median: 80.00 | Mean: 88.24 | Standard deviation: 58.21"
## [1] "Median: 100.00 | Mean: 108.29 | Standard deviation: 55.22"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      1      LP  False      False      False   normal    30   70
## 2 Stand MP      3      MP  False      False      False   normal    60  100
## 3 Stand HP     -2      HP  False      False      False   normal    80  150
## 4 Stand LK      3      LK  False      False      False   normal    30   70
## 5 Stand MK     -2      MK  False      False      False   normal    60  100
## 6 Stand HK     -4      HK  False      False      False   normal    90  150
##      1
## health      1025.000
## stun        1000.000
## vgaugel      900.000
## vgaugel2     600.000
## fDash        17.000
## bDash        21.000
## fWalk        0.040
## bWalk        0.032
## throwHurt    0.410
## throwRange   0.850
```

```
character_info(
  "data/characters/lucia.csv",
  "Lucia",
  "img/lucia.png",
  "#3e77b1"
)
```

```
## [1] "Median: -4.00 | Mean: -6.94 | Standard deviation: 15.91"
## [1] "Median: 80.00 | Mean: 86.31 | Standard deviation: 53.77"
## [1] "Median: 120.00 | Mean: 117.02 | Standard deviation: 53.14"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False      False      False   normal    30   70
## 2 Stand MP      3      MP  False      False      False   normal    50  100
## 3 Stand HP     -2      HP  False      False      False   normal    80  150
## 4 Stand LK      1      LK  False      False      False   normal    40   70
## 5 Stand MK     -2      MK  False      False      False   normal    60  100
## 6 Stand HK     -4      HK  False      False      False   normal    90  150
##      1
```

```
## health      975.00
## stun        1000.00
## vgauge1     900.00
## vgauge2     600.00
## fDash       16.00
## bDash       21.00
## fWalk       0.05
## bWalk       0.04
## throwHurt   0.25
## throwRange  0.80
```

```
character_info(
  "data/characters/m_bison.csv",
  "M. Bison",
  "img/m_bison.png",
  "#480e07"
)
```

```
## [1] "Median: -1.50 | Mean: -2.44 | Standard deviation: 8.69"
## [1] "Median: 80.00 | Mean: 85.15 | Standard deviation: 53.38"
## [1] "Median: 100.00 | Mean: 115.82 | Standard deviation: 52.01"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False    False    False   normal    30   70
## 2 Stand MP      2      MP  False    False    False   normal    60  100
## 3 Stand HP     -6      HP  False    False    False   normal    90  150
## 4 Stand LK     -2      LK  False    False    False   normal    30   70
## 5 Stand MK     -2      MK  False    False    False   normal    60  100
## 6 Stand HK      3      HK  False    False    False   normal    80  150
##      1
## health      1.00e+03
## stun        1.00e+03
## vgauge1     9.00e+02
## vgauge2     6.00e+02
## fDash       2.20e+01
## bDash       2.20e+01
## fWalk       2.62e-02
## bWalk       2.30e-02
## throwHurt   2.50e-01
## throwRange  9.00e-01
```

```
character_info(
  "data/characters/menat.csv",
  "Menat",
  "img/menat.png",
  "#3d224b"
)
```

```
## [1] "Median: -3.50 | Mean: -6.05 | Standard deviation: 9.24"
## [1] "Median: 60.00 | Mean: 69.52 | Standard deviation: 49.78"
## [1] "Median: 100.00 | Mean: 104.05 | Standard deviation: 48.19"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1      Stand LP      3      LP  False    False    False   normal    20   70
## 2 Stand LP orb      3 LP orb  False    False    False   normal    30   70
## 3      Stand MP      2      MP  False    False    False   normal    50  100
## 4 Stand MP orb     -8 MP orb  False    False    False   normal    60  100
## 5      Stand HP     -2      HP  False    False    False   normal    80  150
```

```
## 6 Stand HP orb      -10 HP orb   False   False      False   normal    80 150
##
## health      950.000
## stun       950.000
## vgauge1    900.000
## vgauge2    600.000
## fDash      20.000
## bDash      24.000
## fWalk      0.040
## bWalk      0.032
## throwHurt   0.250
## throwRange  0.850
```

```
character_info(
  "data/characters/nash.csv",
  "Nash",
  "img/nash.png",
  "#3a8455"
)
```

```
## [1] "Median: -5.00 | Mean: -5.28 | Standard deviation: 7.38"
## [1] "Median: 82.00 | Mean: 92.26 | Standard deviation: 50.95"
## [1] "Median: 100.00 | Mean: 124.60 | Standard deviation: 51.09"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP   False   False      False   normal    30  70
## 2 Stand MP      0      MP   False   False      False   normal    60 100
## 3 Stand HP     -5      HP   False   False      False   normal    90 150
## 4 Stand LK      1      LK   False   False      False   normal    30  70
## 5 Stand MK      0      MK   False   False      False   normal    70 100
## 6 Stand HK     -2      HK   False   False      False   normal    80 150
##
## health      975.000
## stun       1000.000
## vgauge1    600.000
## vgauge2    900.000
## fDash      18.000
## bDash      24.000
## fWalk      0.027
## bWalk      0.027
## throwHurt   0.250
## throwRange  0.850
```

```
character_info(
  "data/characters/necalli.csv",
  "Necalli",
  "img/necalli.png",
  "#581e0d"
)
```

```
## [1] "Median: -4.00 | Mean: -4.69 | Standard deviation: 14.04"
## [1] "Median: 80.00 | Mean: 91.44 | Standard deviation: 54.99"
## [1] "Median: 120.00 | Mean: 122.89 | Standard deviation: 59.08"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      1      LP   False   False      False   normal    30  70
## 2 Stand MP      0      MP   False   False      False   normal    60 100
## 3 Stand HP     -2      HP   False   False      False   normal    80 150
```

```
## 4 Stand LK      2      LK  False  False  False  normal  40  70
## 5 Stand MK      2      MK  False  False  False  normal  60 100
## 6 Stand HK     -4      HK  False  False  False  normal  90 150
##
##      1
## health      1025.000
## stun        1050.000
## vgauge1      900.000
## vgauge2      900.000
## fDash        17.000
## bDash        22.000
## fWalk         0.047
## bWalk         0.032
## throwHurt     0.324
## throwRange    0.814
```

```
character_info(
  "data/characters/poison.csv",
  "Poison",
  "img/poison.png",
  "#d14461"
)
```

```
## [1] "Median: -4.00 | Mean: -2.63 | Standard deviation: 13.98"
## [1] "Median: 80.00 | Mean: 87.71 | Standard deviation: 53.09"
## [1] "Median: 150.00 | Mean: 118.57 | Standard deviation: 51.51"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False  False  False  normal  20  70
## 2 Stand MP      3      MP  False  False  False  normal  60 100
## 3 Stand HP     -6      HP  False  False  False  normal  80 150
## 4 Stand LK      1      LK  False  False  False  normal  40  70
## 5 Stand MK     -4      MK  False  False  False  normal  70 100
## 6 Stand HK     -4      HK  False  False  False  normal  80 150
##
##      1
## health      975.000
## stun        975.000
## vgauge1      600.000
## vgauge2      600.000
## fDash        18.000
## bDash        23.000
## fWalk         0.041
## bWalk         0.032
## throwHurt     0.250
## throwRange    0.850
```

```
character_info(
  "data/characters/r_mika.csv",
  "R. Mika",
  "img/r_mika.png",
  "#68e6f7"
)
```

```
## [1] "Median: 3.50 | Mean: 9.32 | Standard deviation: 19.70"
## [1] "Median: 90.00 | Mean: 92.78 | Standard deviation: 46.90"
## [1] "Median: 125.00 | Mean: 126.60 | Standard deviation: 50.73"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False  False  False  normal  30  70
```



```
## 2 Stand MP      -2      MP  False  False  False  normal  60 100
## 3 Stand HP      -6      HP  False  False  False  normal  90 150
## 4 Stand LK       1      LK  False  False  False  normal  30  70
## 5 Stand MK      -2      MK  False  False  False  normal  60 100
## 6 Stand HK      -4      HK  False  False  False  normal  90 150
##               1
## health      9.5e+02
## stun        1.0e+03
## vgauge1     6.0e+02
## vgauge2     9.0e+02
## fDash       1.8e+01
## bDash       2.4e+01
## fWalk       4.2e-02
## bWalk       3.0e-02
## throwHurt   2.5e-01
## throwRange  8.5e-01
```

```
character_info(
  "data/characters/rashid.csv",
  "Rashid",
  "img/rashid.png",
  "#375963"
)
```

```
## [1] "Median: -20.00 | Mean: -18.00 | Standard deviation: 19.56"
## [1] "Median: 100.00 | Mean: 101.59 | Standard deviation: 48.02"
## [1] "Median: 150.00 | Mean: 146.15 | Standard deviation: 55.51"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP       3      LP  False  False  False  normal  30  70
## 2 Stand MP       3      MP  False  False  False  normal  60 100
## 3 Stand HP      -3      HP  False  False  False  normal  80 150
## 4 Stand LK       1      LK  False  False  False  normal  30  70
## 5 Stand MK      -4      MK  False  False  False  normal  60 100
## 6 Stand HK      -4      HK  False  False  False  normal  90 150
##               1
## health      950.000
## stun        950.000
## vgauge1     600.000
## vgauge2     600.000
## fDash       15.000
## bDash       24.000
## fWalk       0.040
## bWalk       0.036
## throwHurt   0.402
## throwRange  0.852
```

```
character_info(
  "data/characters/ryu.csv",
  "Ryu",
  "img/ryu.png",
  "#457272"
)
```

```
## [1] "Median: -6.00 | Mean: -6.56 | Standard deviation: 13.59"
## [1] "Median: 90.00 | Mean: 91.51 | Standard deviation: 50.78"
## [1] "Median: 150.00 | Mean: 133.26 | Standard deviation: 58.79"
```

```
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False      False      False  normal    30   70
## 2 Stand MP      2      MP  False      False      False  normal    60  100
## 3 Stand HP     -1      HP  False      False      False  normal    90  150
## 4 Stand LK     -2      LK  False      False      False  normal    30   70
## 5 Stand MK     -2      MK  False      False      False  normal    70  100
## 6 Stand HK     -1      HK  False      False      False  normal    90  150
##
##      1
## health      1025.000
## stun        1050.000
## vgauge1      600.000
## vgauge2      600.000
## fDash        16.000
## bDash        21.000
## fWalk         0.047
## bWalk         0.032
## throwHurt     0.250
## throwRange    0.800
```

```
character_info(
  "data/characters/sagat.csv",
  "Sagat",
  "img/sagat.png",
  "#a16a46"
)
```

```
## [1] "Median: -2.00 | Mean: -9.56 | Standard deviation: 15.42"
## [1] "Median: 80.00 | Mean: 95.24 | Standard deviation: 53.64"
## [1] "Median: 120.00 | Mean: 122.46 | Standard deviation: 45.69"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      4      LP  False      False      False  normal    30   70
## 2 Stand MP      3      MP  False      False      False  normal    60  100
## 3 Stand HP     -2      HP  False      False      False  normal    90  150
## 4 Stand LK      1      LK  False      False      False  normal    40   70
## 5 Stand MK     -2      MK  False      False      False  normal    70  100
## 6 Stand HK     -3      HK  False      False      False  normal    80  150
##
##      1
## health      1025.0000
## stun        1050.0000
## vgauge1      900.0000
## vgauge2      600.0000
## fDash        20.0000
## bDash        24.0000
## fWalk         0.0365
## bWalk         0.0277
## throwHurt     0.2500
## throwRange    0.8500
```

```
character_info(
  "data/characters/sakura.csv",
  "Sakura",
  "img/sakura.png",
  "#ff83fa"
)
```

```
## [1] "Median: -3.00 | Mean: -6.44 | Standard deviation: 11.18"
```

```
## [1] "Median: 80.00 | Mean: 80.37 | Standard deviation: 38.99"
## [1] "Median: 112.00 | Mean: 114.20 | Standard deviation: 46.52"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False      False      False  normal    30   70
## 2 Stand MP      3      MP  False      False      False  normal    60  100
## 3 Stand HP     -2      HP  False      False      False  normal    80  150
## 4 Stand LK     -2      LK  False      False      False  normal    30   70
## 5 Stand MK      1      MK  False      False      False  normal    60  100
## 6 Stand HK     -4      HK  False      False      False  normal    80  150
##
##      1
## health      9.75e+02
## stun        1.00e+03
## vgauge1      6.00e+02
## vgauge2      6.00e+02
## fDash        1.60e+01
## bDash        2.30e+01
## fWalk        5.27e-02
## bWalk        4.70e-02
## throwHurt    2.50e-01
## throwRange   8.00e-01
```

```
character_info(
  "data/characters/seth.csv",
  "Seth",
  "img/seth.png",
  "#6d7293"
)
```

```
## [1] "Median: -5.00 | Mean: -7.16 | Standard deviation: 9.76"
## [1] "Median: 80.00 | Mean: 85.73 | Standard deviation: 39.05"
## [1] "Median: 120.00 | Mean: 119.17 | Standard deviation: 45.32"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      3      LP  False      False      False  normal    30   70
## 2 Stand MP     -2      MP  False      False      False  normal    50  100
## 3 Stand HP     -4      HP  False      False      False  normal    80  150
## 4 Stand LK      3      LK  False      False      False  normal    40   70
## 5 Stand MK     -2      MK  False      False      False  normal    70  100
## 6 Stand HK    -10      HK  False      False      False  normal    80  150
##
##      1
## health      900.000
## stun        900.000
## vgauge1      600.000
## vgauge2      600.000
## fDash        16.000
## bDash        23.000
## fWalk         0.047
## bWalk         0.032
## throwHurt     0.250
## throwRange    0.800
```

```
character_info(
  "data/characters/urien.csv",
  "Urien",
  "img/urien.png",
  "#714661"
)
```

```

)

## [1] "Median: -2.00 | Mean: -0.69 | Standard deviation: 10.04"
## [1] "Median: 90.00 | Mean: 82.86 | Standard deviation: 46.45"
## [1] "Median: 140.00 | Mean: 115.54 | Standard deviation: 60.16"
##
##      Move onBlock      plnCmd airmove followUp projectile moveType
## 1      Stand LP      2          LP  False    False    False   normal
## 2      Stand MP      3          MP  False    False    False   normal
## 3      Stand HP     -2          HP  False    False    False   normal
## 4  Stand HP (hold)    5  HP (hold)  False    False    False   normal
## 5 Stand HP (release) -2 HP (release) False    False    False   normal
## 6      Stand LK      3          LK  False    False    False   normal
##
## Damage Stun
## 1      30  70
## 2      60 100
## 3      90 150
## 4     100 150
## 5      90 150
## 6      40  70
##
##      1
## health 1025.0000
## stun   1050.0000
## vgauge1 900.0000
## vgauge2 600.0000
## fDash   16.0000
## bDash   25.0000
## fWalk   0.0435
## bWalk   0.0300
## throwHurt 0.2500
## throwRange 0.8500

character_info(
  "data/characters/vega.csv",
  "Vega",
  "img/vega.png",
  "#ed5971"
)

## [1] "Median: -2.00 | Mean: -3.17 | Standard deviation: 8.98"
## [1] "Median: 85.00 | Mean: 95.26 | Standard deviation: 52.89"
## [1] "Median: 150.00 | Mean: 134.57 | Standard deviation: 57.73"
##
##      Move onBlock      plnCmd airmove followUp projectile moveType
## 1 Stand LP (no claw)  3 LP (no claw)  False    False    False   normal
## 2 Stand MP (no claw)  1 MP (no claw)  False    False    False   normal
## 3 Stand HP (no claw) -1 HP (no claw)  False    False    False   normal
## 4  Stand LP (claw)    1  LP (claw)    False    False    False   normal
## 5  Stand MP (claw)    2  MP (claw)    False    False    False   normal
## 6  Stand HP (claw)   -2  HP (claw)    False    False    False   normal
##
## Damage Stun
## 1      30  70
## 2      60 100
## 3      90 150
## 4      30  70
## 5      70 100
## 6      80 150

```

```
## 1
## health 1025.0000
## stun 975.0000
## vgauge1 600.0000
## vgauge2 600.0000
## fDash 17.0000
## bDash 21.0000
## fWalk 0.0550
## bWalk 0.0450
## throwHurt 0.4087
## throwRange 0.8557
```

```
character_info(
  "data/characters/zangief.csv",
  "Zangief",
  "img/zangief.png",
  "#e52a0e"
)
```

```
## [1] "Median: -2.00 | Mean: -1.92 | Standard deviation: 9.13"
## [1] "Median: 70.00 | Mean: 74.58 | Standard deviation: 29.04"
## [1] "Median: 100.00 | Mean: 114.58 | Standard deviation: 55.72"
##      Move onBlock      plnCmd airmove followUp projectile moveType
## 1      Stand LP      3      LP  False  False  False  normal
## 2      Stand MP      2      MP  False  False  False  normal
## 3      Stand HP     -4      HP  False  False  False  normal
## 4      Stand HP (hold) 2  HP (hold) False  False  False  normal
## 5 Stand HP (release) -4 HP (release) False  False  False  normal
## 6      Stand LK     -3      LK  False  False  False  normal
##  Damage Stun
## 1      40  70
## 2      70 100
## 3     100 150
## 4     130 200
## 5     100 150
## 6      30  70
```

```
## 1
## health 1075.0000
## stun 1100.0000
## vgauge1 900.0000
## vgauge2 900.0000
## fDash 25.0000
## bDash 25.0000
## fWalk 0.0305
## bWalk 0.0235
## throwHurt 0.4000
## throwRange 0.9000
```

```
character_info(
  "data/characters/zeku_old.csv",
  "Zeku (Old)",
  "img/zeku_old.png",
  "#545345"
)
```

```
## [1] "Median: -4.00 | Mean: -6.67 | Standard deviation: 12.32"
```

```
## [1] "Median: 90.00 | Mean: 92.65 | Standard deviation: 48.17"
## [1] "Median: 100.00 | Mean: 122.65 | Standard deviation: 50.28"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False      False      False  normal    30   70
## 2 Stand MP      3      MP  False      False      False  normal    60  100
## 3 Stand HP     -5      HP  False      False      False  normal    80  150
## 4 Stand LK      2      LK  False      False      False  normal    40   70
## 5 Stand MK      2      MK  False      False      False  normal    60  100
## 6 Stand HK     -2      HK  False      False      False  normal    90  150
##
##      1
## health      1.00e+03
## stun        1.00e+03
## vgauge1     6.00e+02
## vgauge2     6.00e+02
## fDash       1.70e+01
## bDash       2.20e+01
## fWalk       4.35e-02
## bWalk       2.84e-02
## throwHurt   3.00e-01
## throwRange  8.00e-01
```

```
character_info(
  "data/characters/zeku_young.csv",
  "Zeku (Young)",
  "img/zeku_young.png",
  "#351f0a"
)
```

```
## [1] "Median: -5.00 | Mean: -6.53 | Standard deviation: 9.46"
## [1] "Median: 85.00 | Mean: 94.65 | Standard deviation: 55.96"
## [1] "Median: 150.00 | Mean: 132.20 | Standard deviation: 64.22"
##      Move onBlock plnCmd airmove followUp projectile moveType Damage Stun
## 1 Stand LP      2      LP  False      False      False  normal    30   70
## 2 Stand MP      2      MP  False      False      False  normal    60  100
## 3 Stand HP     -3      HP  False      False      False  normal    80  150
## 4 Stand LK     -2      LK  False      False      False  normal    40   70
## 5 Stand MK     -3      MK  False      False      False  normal    60  100
## 6 Stand HK     -2      HK  False      False      False  normal    90  150
##
##      1
## health      1.0e+03
## stun        1.0e+03
## vgauge1     6.0e+02
## vgauge2     6.0e+02
## fDash       1.7e+01
## bDash       2.2e+01
## fWalk       5.4e-02
## bWalk       3.5e-02
## throwHurt   3.0e-01
## throwRange  8.0e-01
```

## Module 2: Visualization

Are frames on block and damage+stun correlated? Let's find out.

```
library(tidyverse)
library(RColorBrewer)
df <- read.csv("data/all.csv", stringsAsFactors = FALSE)
```

### Tilemaps

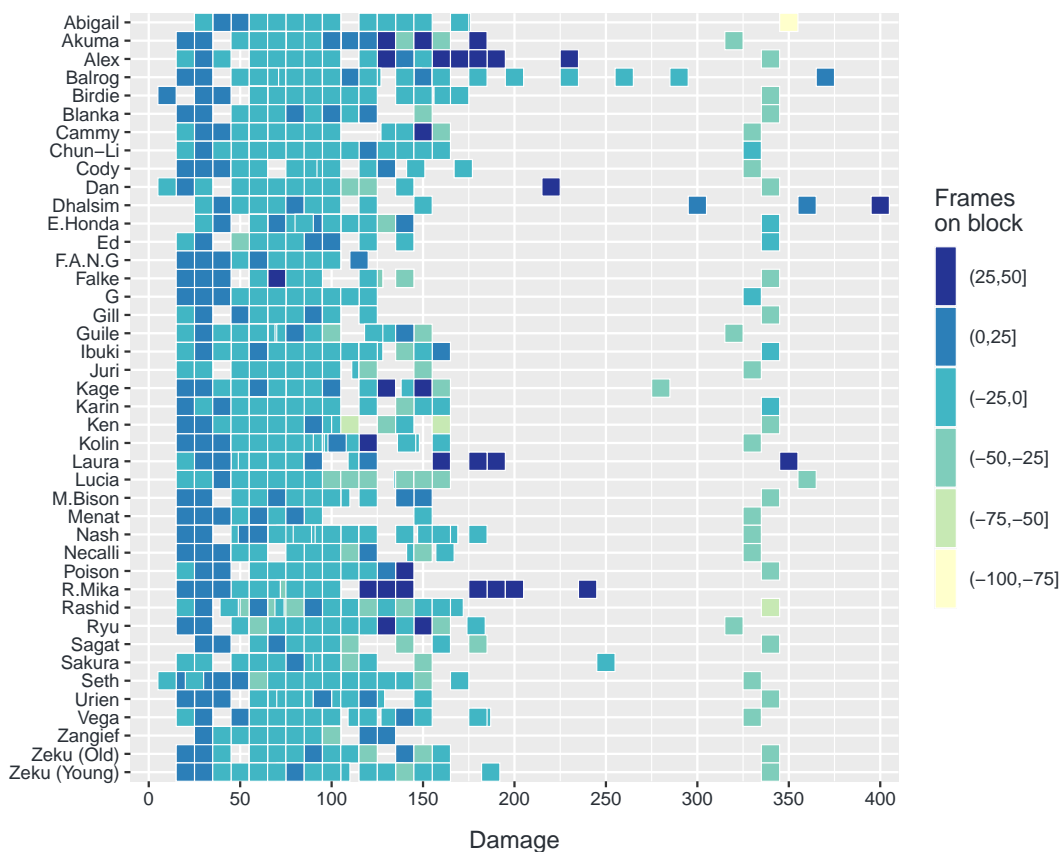
```
df_tile <- df %>%
  # convert to factor and reverse level order so it looks right on plot
  mutate(character_name = factor(Character,
    levels = rev(sort(unique(Character))))
  ) %>%
  # create intervals for plotting/colormap and similar to before, reverse order
  mutate(oB_bins = cut(onBlock,
    breaks = seq(from = -100, to = max(onBlock, na.rm = TRUE) + 2, by = 25)
  ) %>%
  mutate(oB_bins = factor(as.character(oB_bins), levels = rev(levels(oB_bins))))

# make sure the set of colors matches the number of bins
cmap_bins <- length(levels(df_tile$oB_bins))

tilemap <- function(responses, custompal) {
  print(ggplot(df_tile, aes({ responses }, character_name, fill = oB_bins)) +
    geom_tile(width = 10, color = "white", linewidth = 0.2) +
    coord_fixed(ratio = 10) +
    guides(fill = guide_legend(title = "Frames\\non block")) +
    labs(y = "") +
    # removes extra space
    scale_y_discrete(expand = c(0, 0)) +
    # define new breaks on x-axis
    scale_x_continuous(
      expand = c(0, 0),
      limits = c(-10, 410),
      breaks = seq(from = 0, to = 400, by = 50)
    ) +
    scale_fill_manual(values = rev(brewer.pal(cmap_bins, custompal))) +
    # set a base size for all fonts
    theme_grey(base_size = 9) +
    # styling to make it my own
    theme(
      legend.title = element_text(color = "#292F36"),
      legend.text = element_text(size = 7, color = "#292F36"),
      legend.key.height = grid::unit(0.8, "cm"),
      legend.key.width = grid::unit(0.3, "cm"),
      axis.title.x = element_text(margin = margin(t = 8), color = "#292F36"),
      axis.text.x = element_text(color = "#292F36"),
      axis.text.y = element_text(color = "#292F36"),
      axis.ticks = element_line(linewidth = 0.4), # thickness of axis ticks
      plot.background = element_blank(), # rm background
      panel.border = element_blank() # rm outer border
    )
  )
}
```

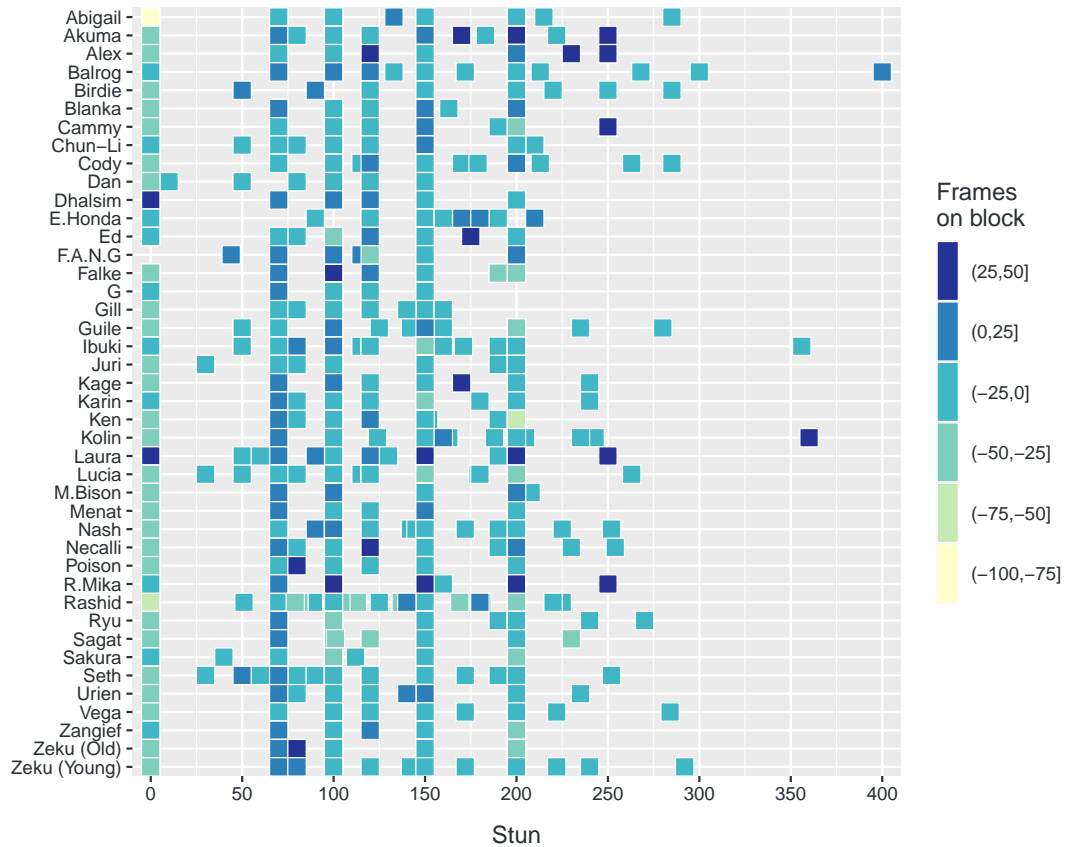
```
}
```

```
tilemap(Damage, "YlGnBu") # will give user option to change to YlOrRd
```



```
tilemap(Stun, "YlGnBu")
```





## Scatter plots with linear fit

```
library(viridisLite)

scatterplot <- function(datafile, char_name, clr) {
  df <- read.csv(datafile, stringsAsFactors = FALSE)

  print(cor.test(df$onBlock, df$Damage))
  print(lm(Damage ~ onBlock, data = df))
  print(ggplot(df, aes(onBlock, Damage)) +
    geom_point(aes(color = Damage)) +
    scale_color_gradientn(colors = viridis(max(df$Damage), option = "C")) +
    geom_smooth(method = "lm", color = clr, fill = clr, alpha = 0.15))

  print(cor.test(df$onBlock, df$Stun))
  print(lm(Stun ~ onBlock, data = df))
  print(ggplot(df, aes(onBlock, Stun)) +
    geom_point(aes(color = Stun)) +
    scale_color_gradientn(colors = viridis(max(df$Stun), option = "D")) +
    geom_smooth(method = "lm", color = clr, fill = clr, alpha = 0.15))
}
```

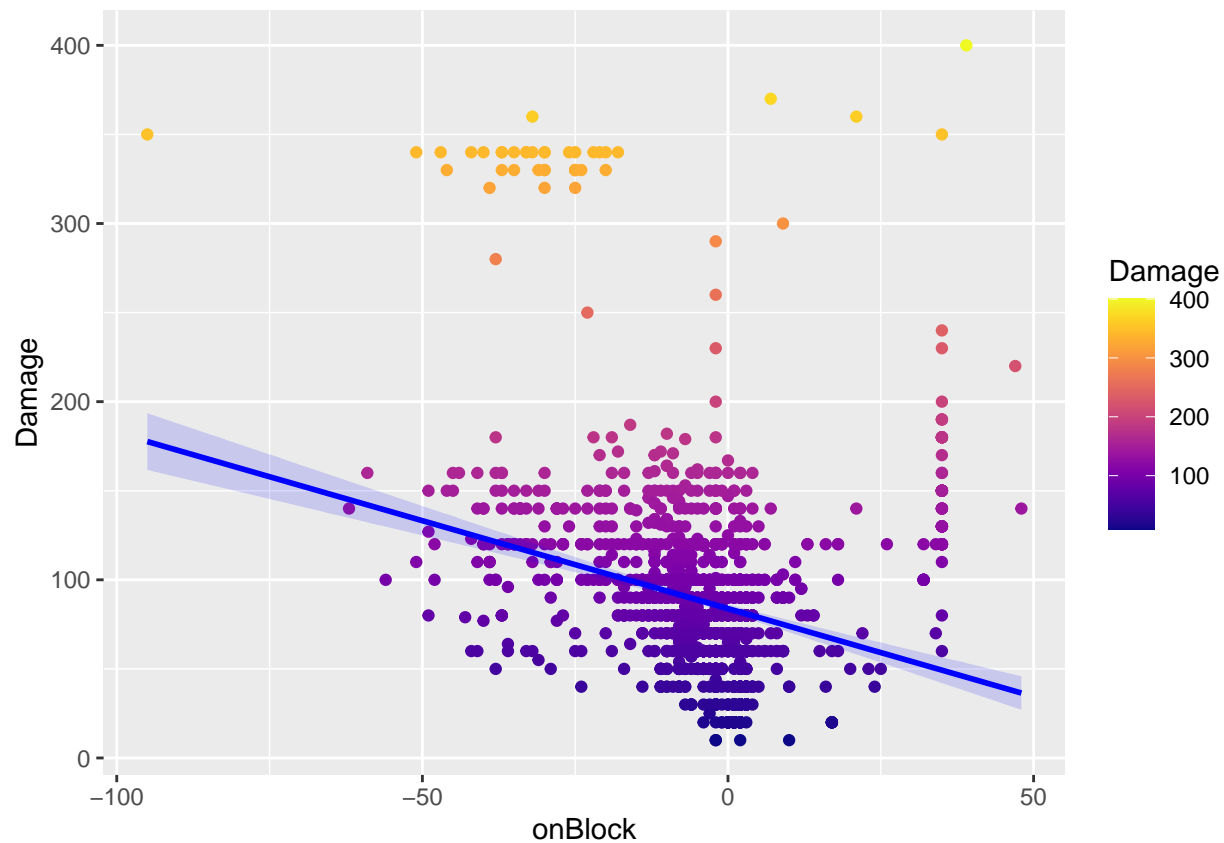
Put it to the test

```

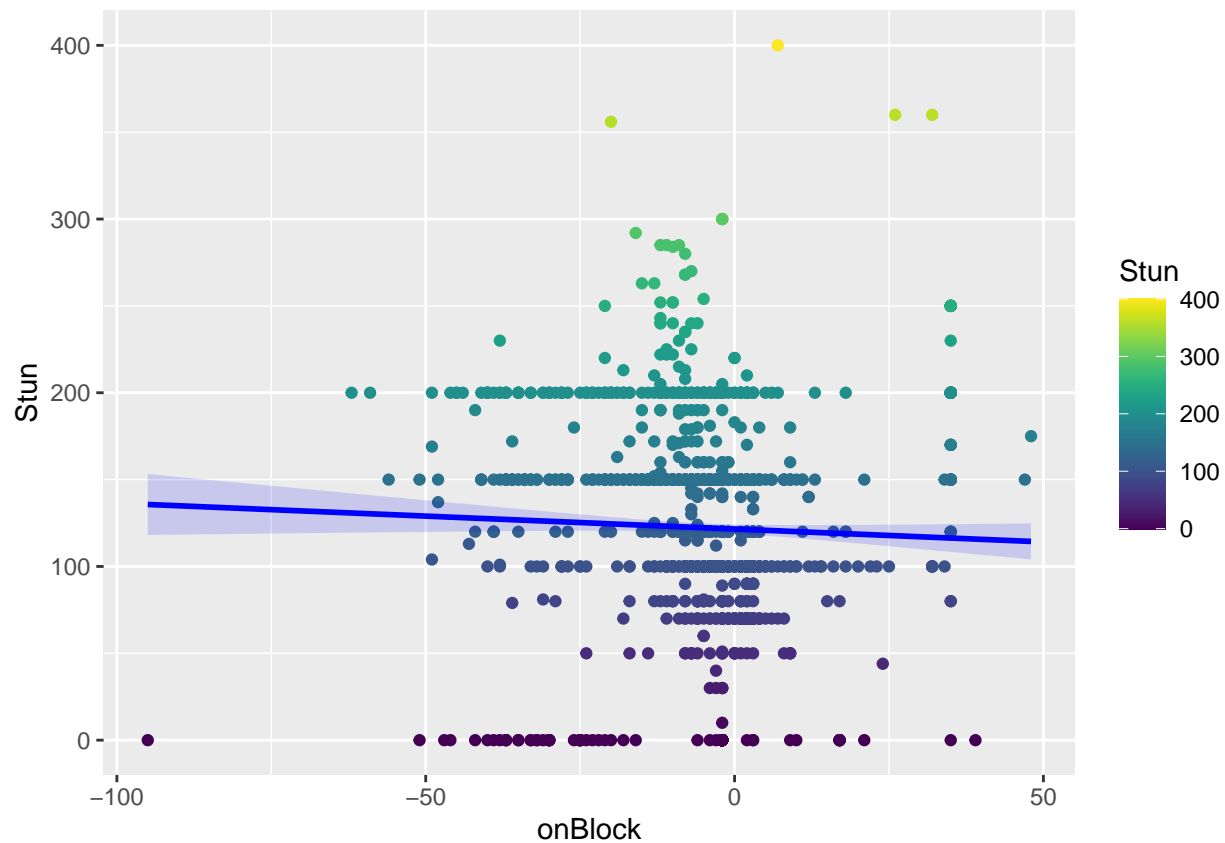
scatterplot(
  "data/all.csv",
  "All characters",
  "#0000ff"
)

##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -11.126, df = 1807, p-value < 2.2e-16
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2958481 -0.2095717
## sample estimates:
## cor
## -0.2532133
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 83.833 -0.987
## `geom_smooth()` using formula = 'y ~ x'

```

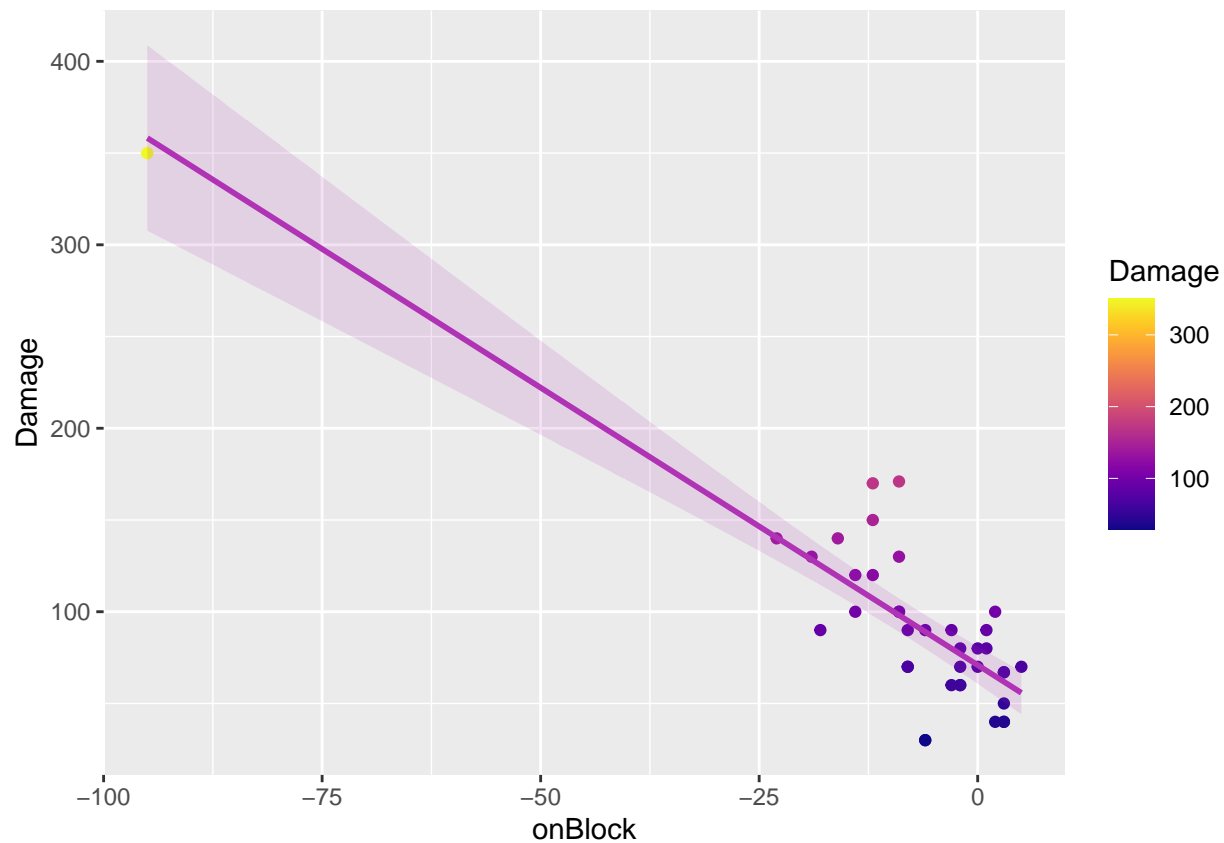


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -1.5214, df = 1807, p-value = 0.1283
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.08172056 0.01033640
## sample estimates:
##      cor
## -0.03576795
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    121.5538      -0.1487
##
## `geom_smooth()` using formula = 'y ~ x'
```

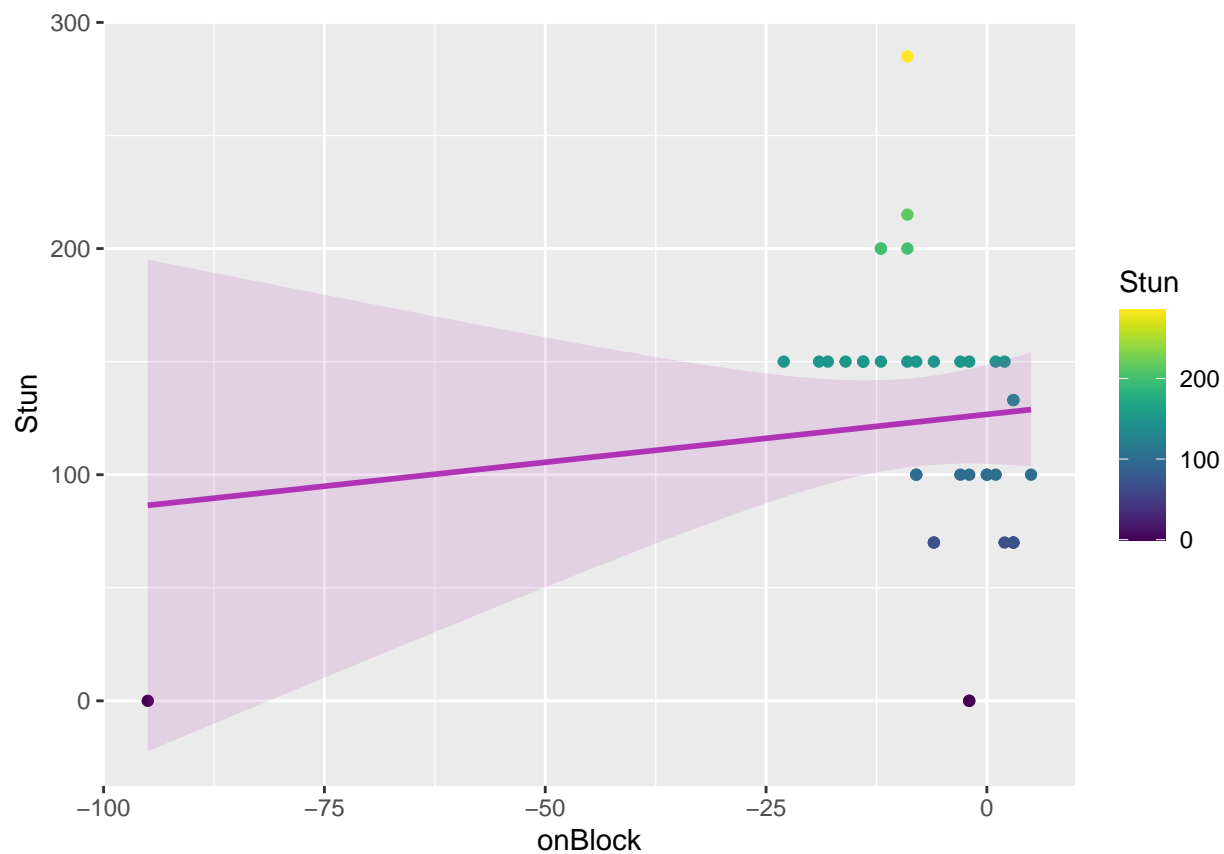


```
scatterplot(
  "data/characters/abigail.csv",
  "Abigail",
  "#af33b4"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -10.75, df = 36, p-value = 8.692e-13
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.9325583 -0.7678548
## sample estimates:
## cor
## -0.8731947
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 70.914 -3.024
## `geom_smooth()` using formula = 'y ~ x'
```

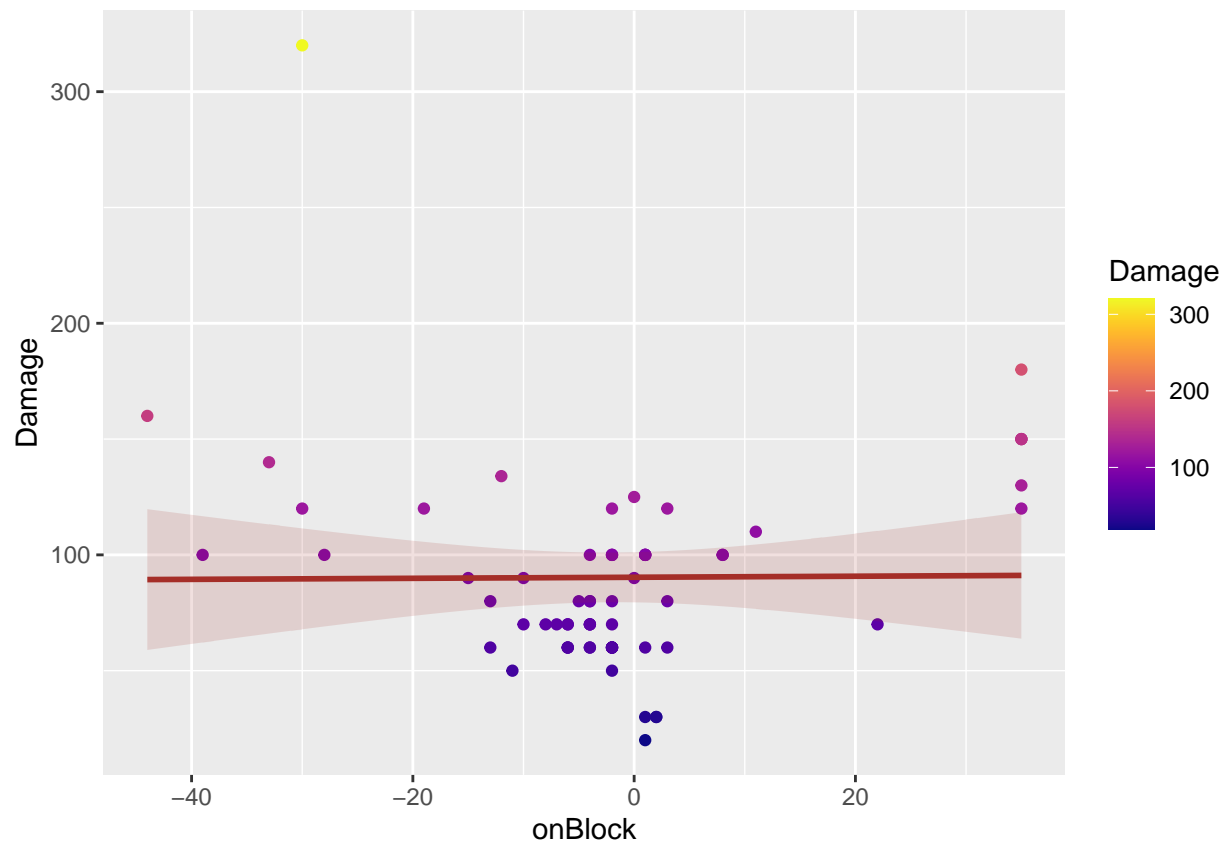


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.69945, df = 36, p-value = 0.4888
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2117303 0.4199297
## sample estimates:
##      cor
## 0.1157905
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    126.6701      0.4235
## `geom_smooth()` using formula = 'y ~ x'
```

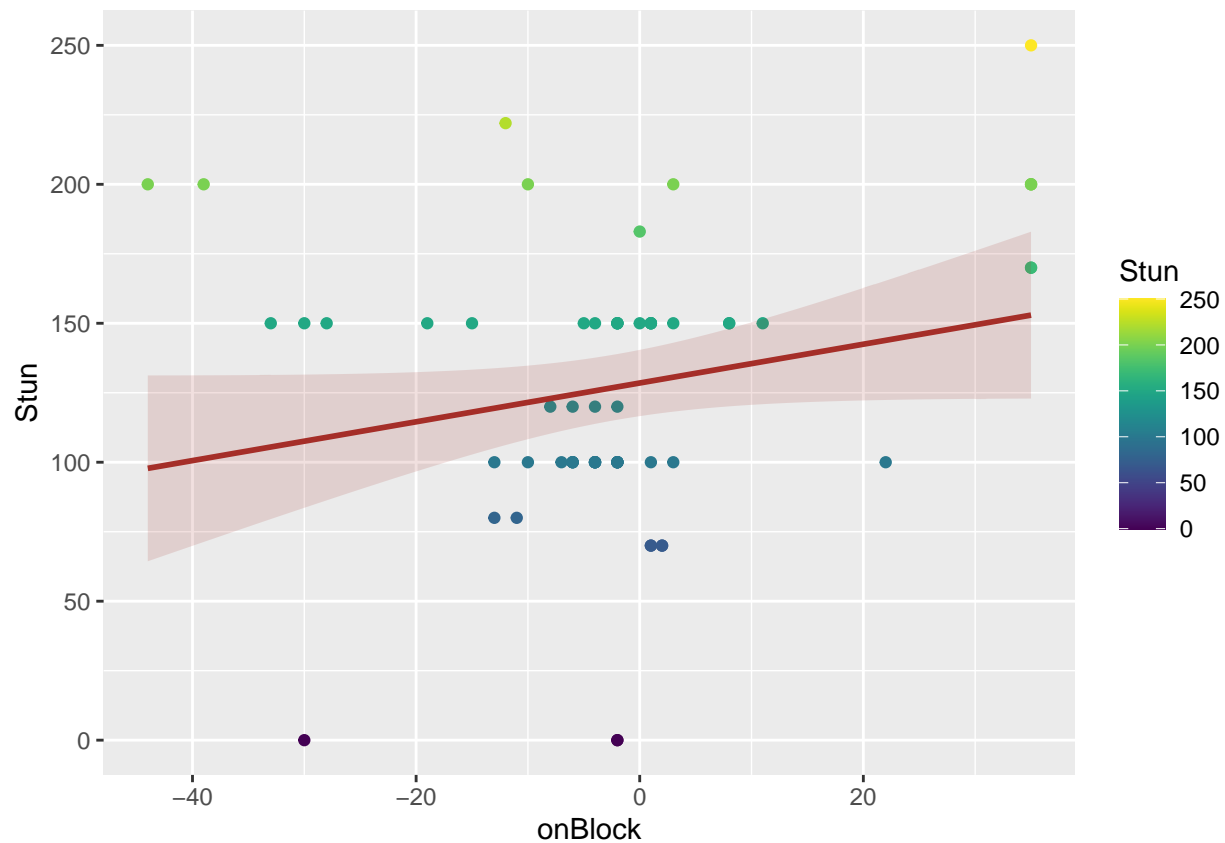


```
scatterplot(
  "data/characters/akuma.csv",
  "Akuma",
  "#a52e28"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = 0.066519, df = 65, p-value = 0.9472
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2324189 0.2479676
## sample estimates:
## cor
## 0.008250357
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 90.32938 0.02256
## `geom_smooth()` using formula = 'y ~ x'
```



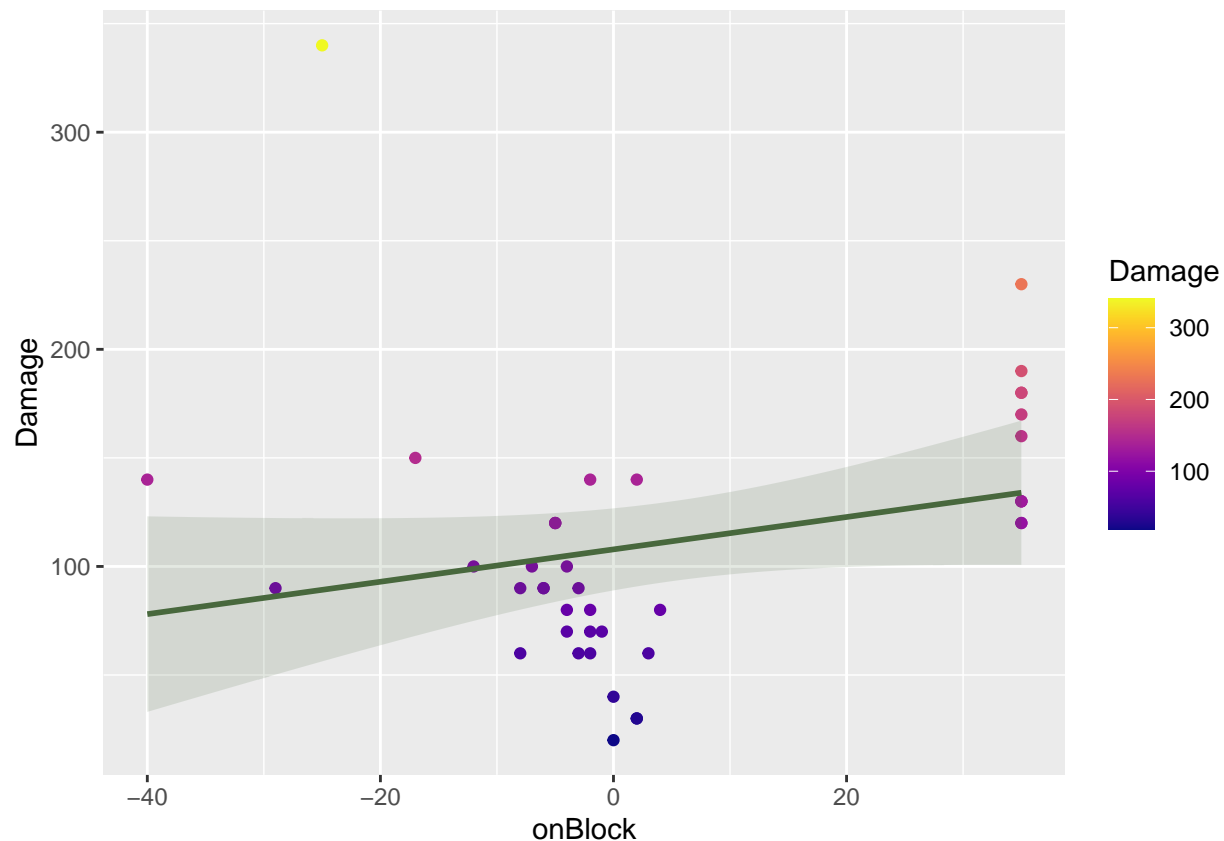
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 1.8699, df = 65, p-value = 0.066
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.01508786 0.44215151
## sample estimates:
##      cor
## 0.2259396
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    128.5061      0.6979
## `geom_smooth()` using formula = 'y ~ x'
```



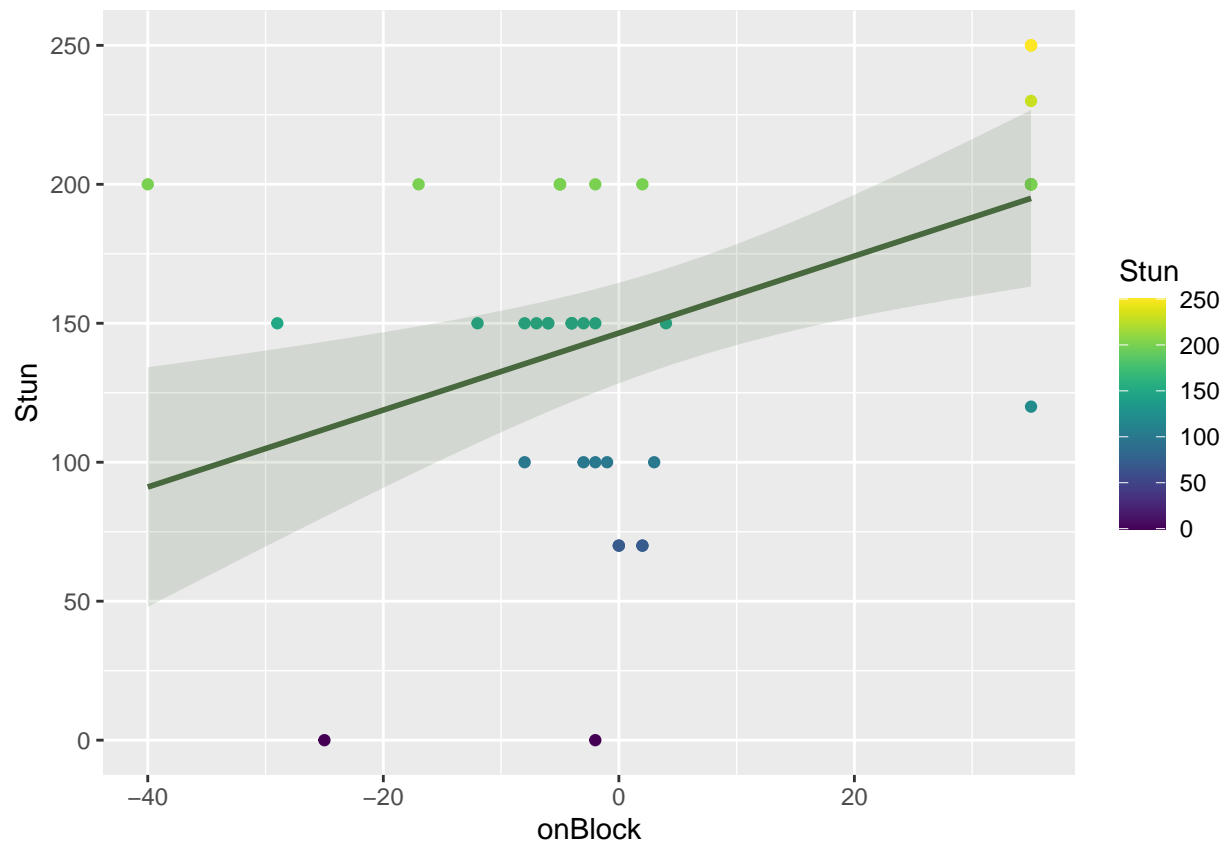
```
scatterplot(
  "data/characters/alex.csv",
  "Alex",
  "#48683d"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = 1.6441, df = 39, p-value = 0.1082
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.05757528 0.52139762
## sample estimates:
## cor
## 0.2545846
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 107.8638 0.7454
## `geom_smooth()` using formula = 'y ~ x'
```



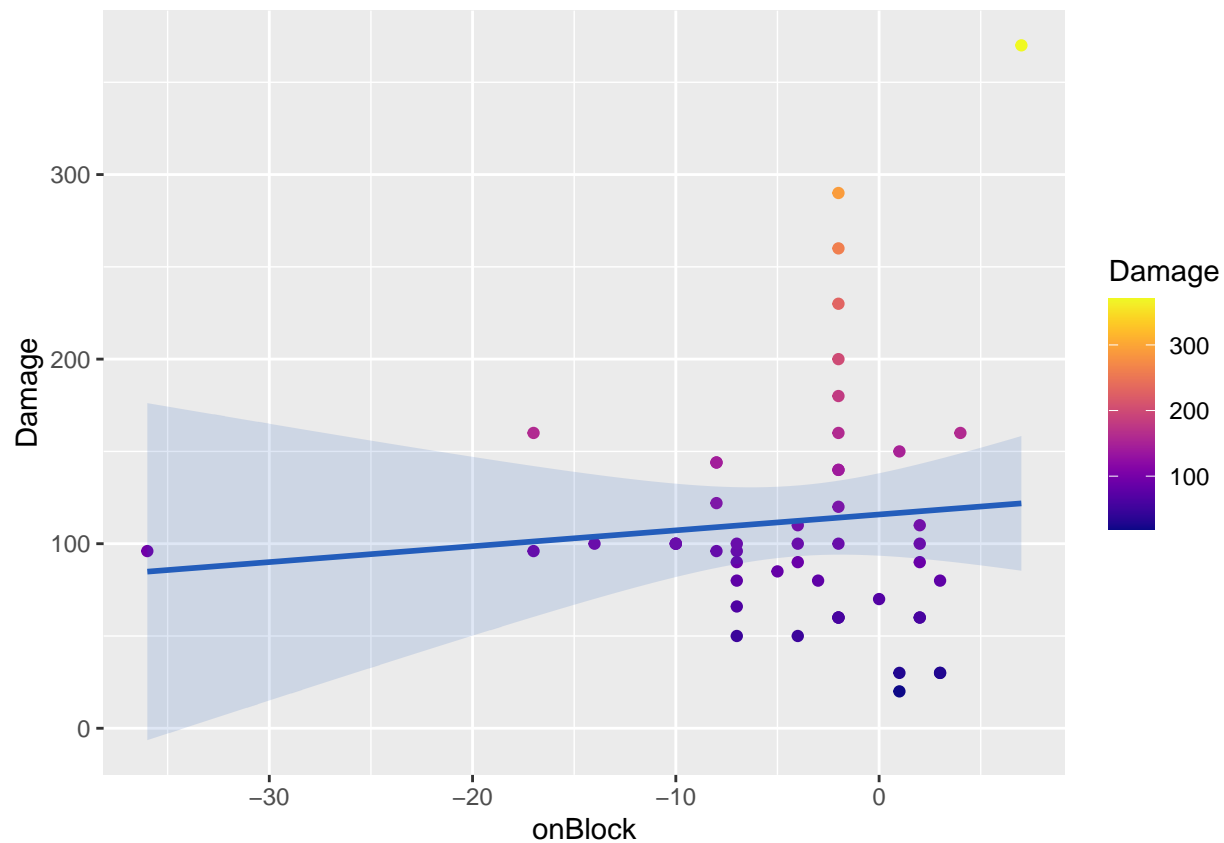


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 3.1919, df = 39, p-value = 0.002792
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.1714727 0.6690823
## sample estimates:
##      cor
## 0.4551142
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      146.481         1.385
## `geom_smooth()` using formula = 'y ~ x'
```

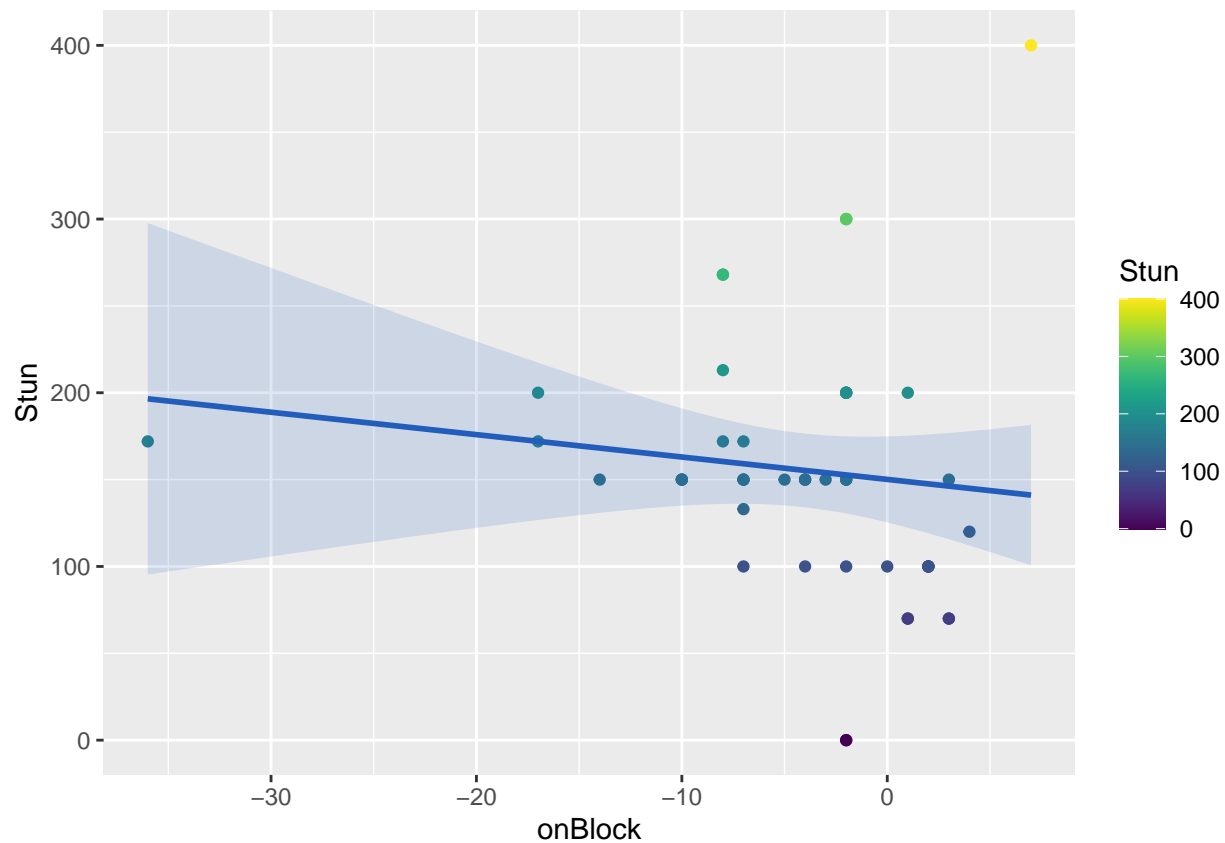


```
scatterplot(
  "data/characters/balrog.csv",
  "Balrog",
  "#235dbb"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = 0.61796, df = 48, p-value = 0.5395
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.1943101 0.3583293
## sample estimates:
## cor
## 0.08884275
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 115.8264 0.8601
## `geom_smooth()` using formula = 'y ~ x'
```

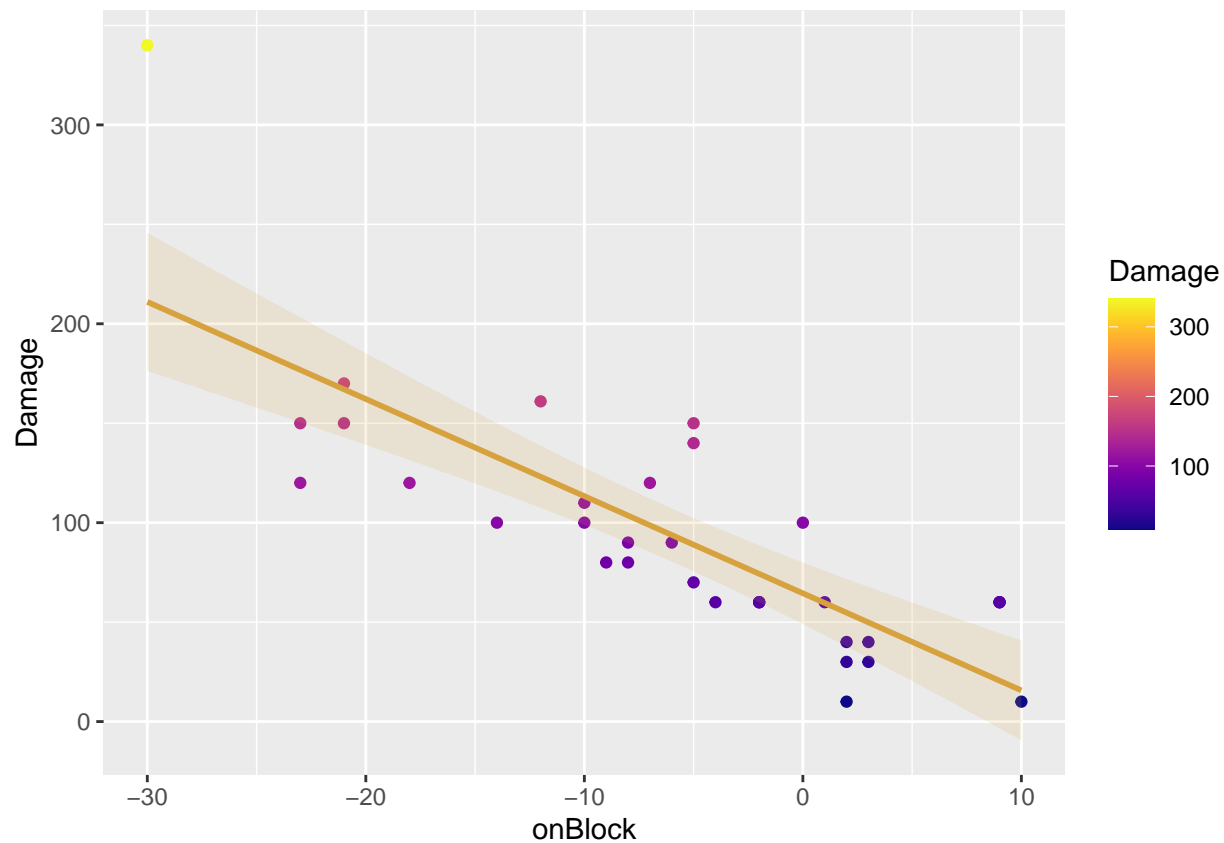


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -0.83575, df = 48, p-value = 0.4074
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.3852662 0.1640550
## sample estimates:
##      cor
## -0.1197615
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      150.115       -1.289
## `geom_smooth()` using formula = 'y ~ x'
```

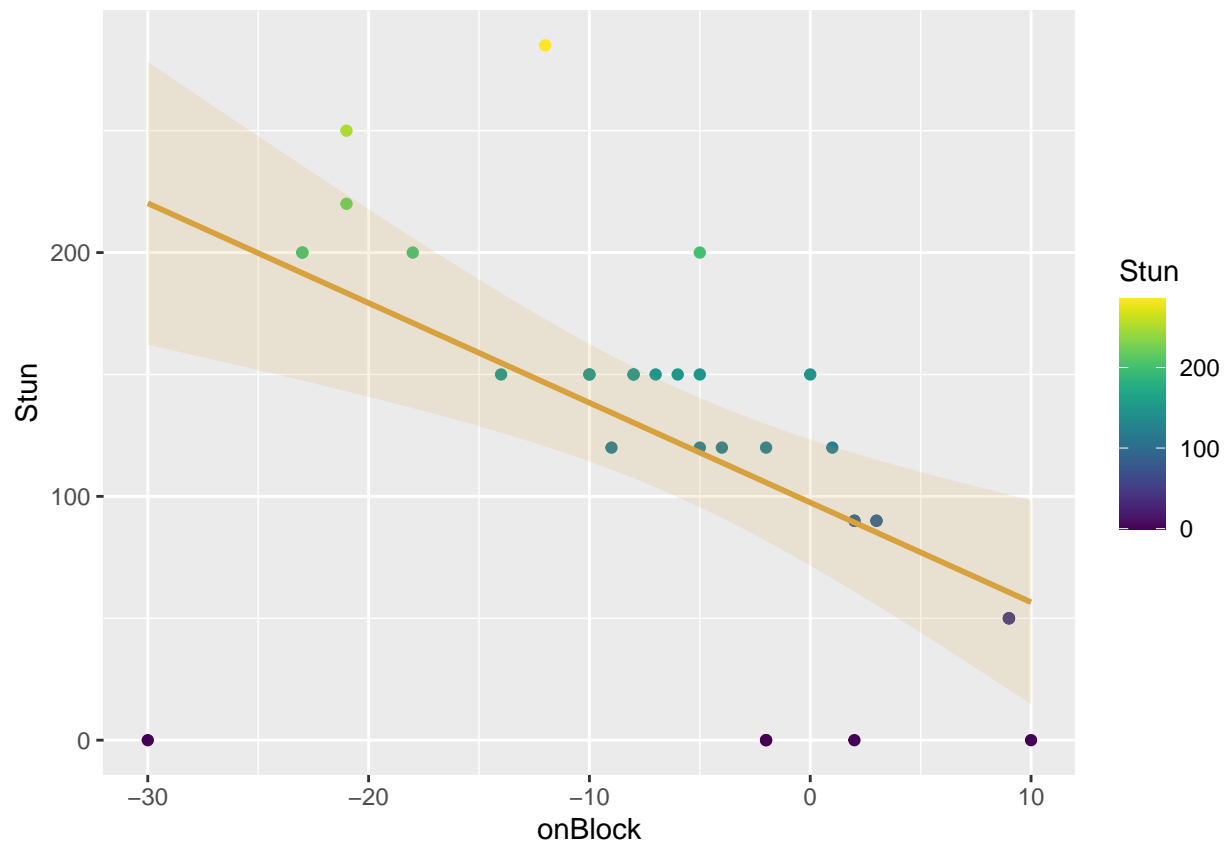


```
scatterplot(
  "data/characters/birdie.csv",
  "Birdie",
  "#d7a23e"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -7.4862, df = 31, p-value = 1.957e-08
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8982671 -0.6336522
## sample estimates:
## cor
## -0.8024068
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 64.507 -4.883
## `geom_smooth()` using formula = 'y ~ x'
```

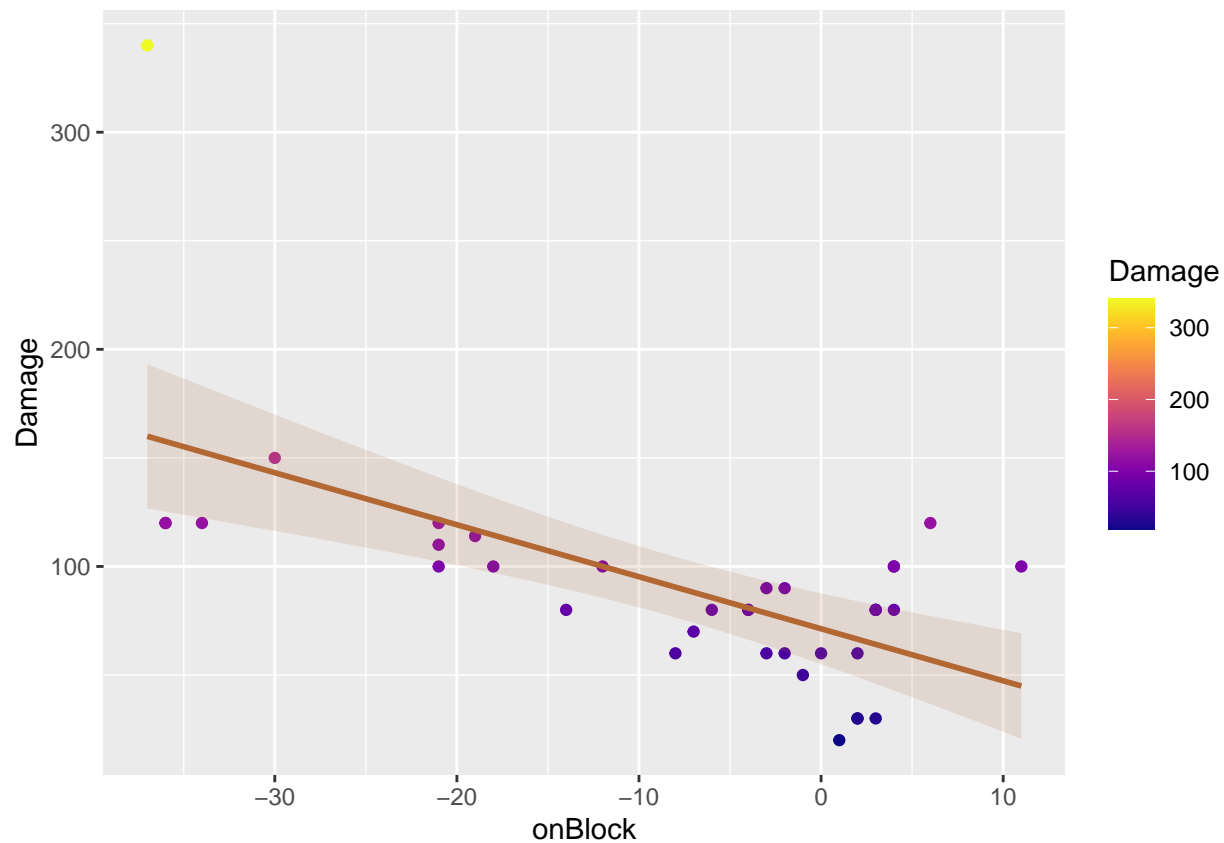


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -3.7532, df = 31, p-value = 0.0007216
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.7570035 -0.2668613
## sample estimates:
##      cor
## -0.5589606
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      97.490      -4.092
## `geom_smooth()` using formula = 'y ~ x'
```

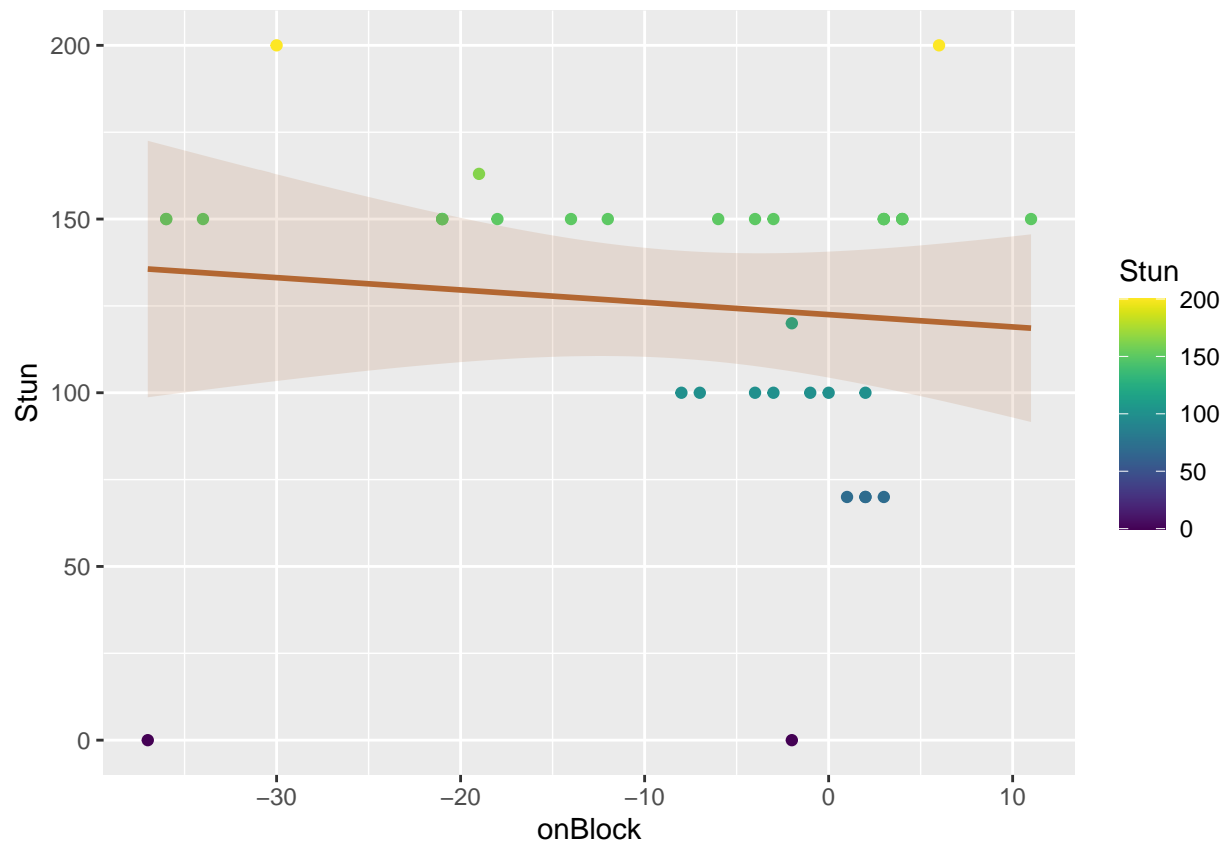


```
scatterplot(
  "data/characters/blanka.csv",
  "Blanka",
  "#b36732"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -4.6676, df = 34, p-value = 4.614e-05
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.7910511 -0.3729646
## sample estimates:
## cor
## -0.6249267
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 71.301 -2.396
## `geom_smooth()` using formula = 'y ~ x'
```



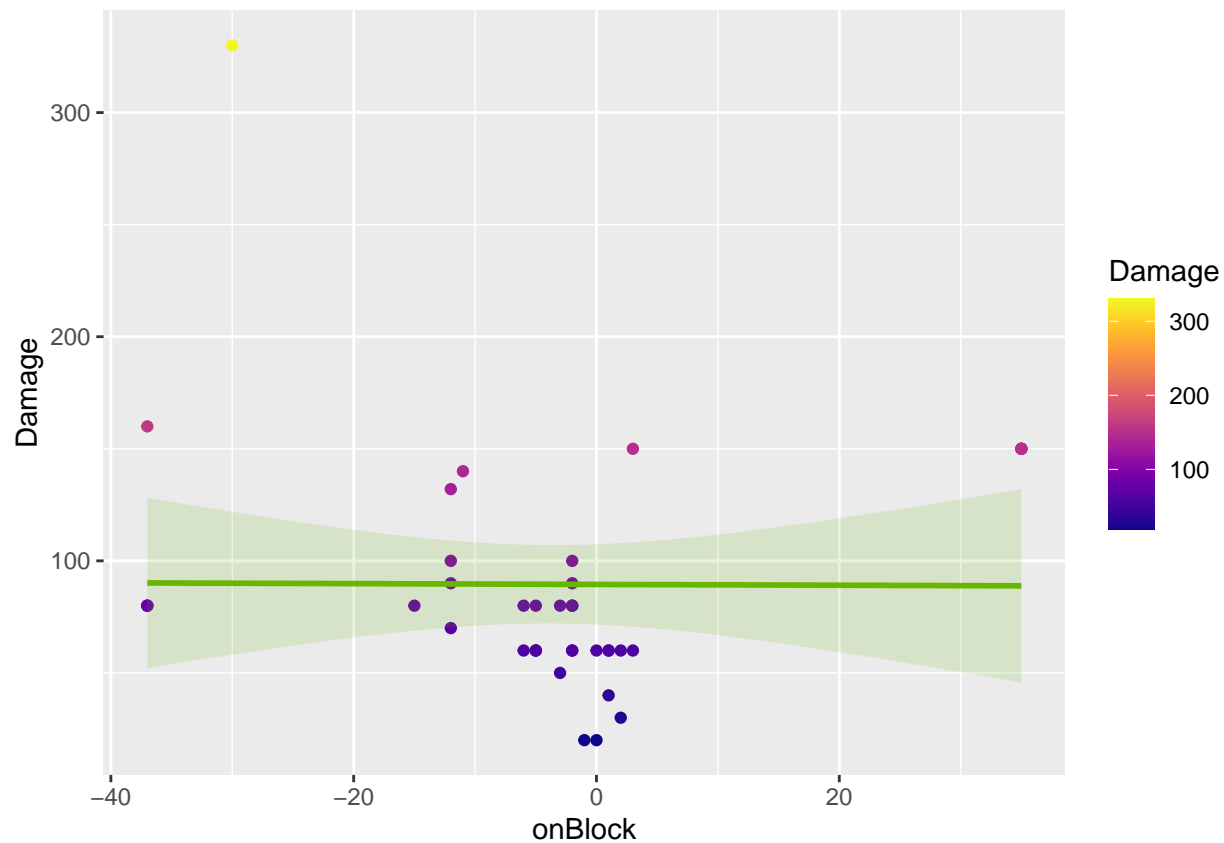
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -0.62247, df = 34, p-value = 0.5378
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4200377 0.2304211
## sample estimates:
##      cor
## -0.1061504
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    122.4935     -0.3547
## `geom_smooth()` using formula = 'y ~ x'
```



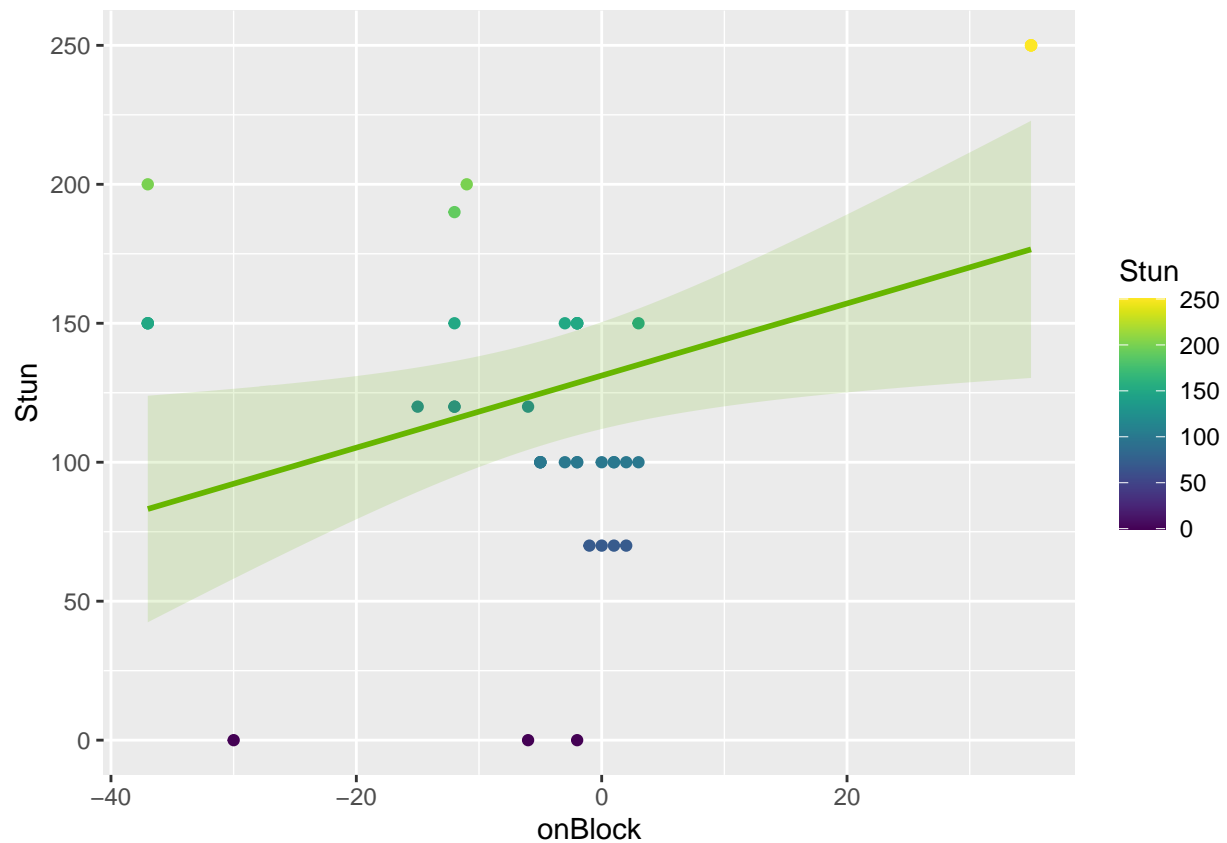
```
scatterplot(
  "data/characters/cammy.csv",
  "Cammy",
  "#67b600"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -0.035634, df = 38, p-value = 0.9718
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.3167196 0.3062803
## sample estimates:
## cor
## -0.005780581
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 89.4820 -0.0179
## `geom_smooth()` using formula = 'y ~ x'
```



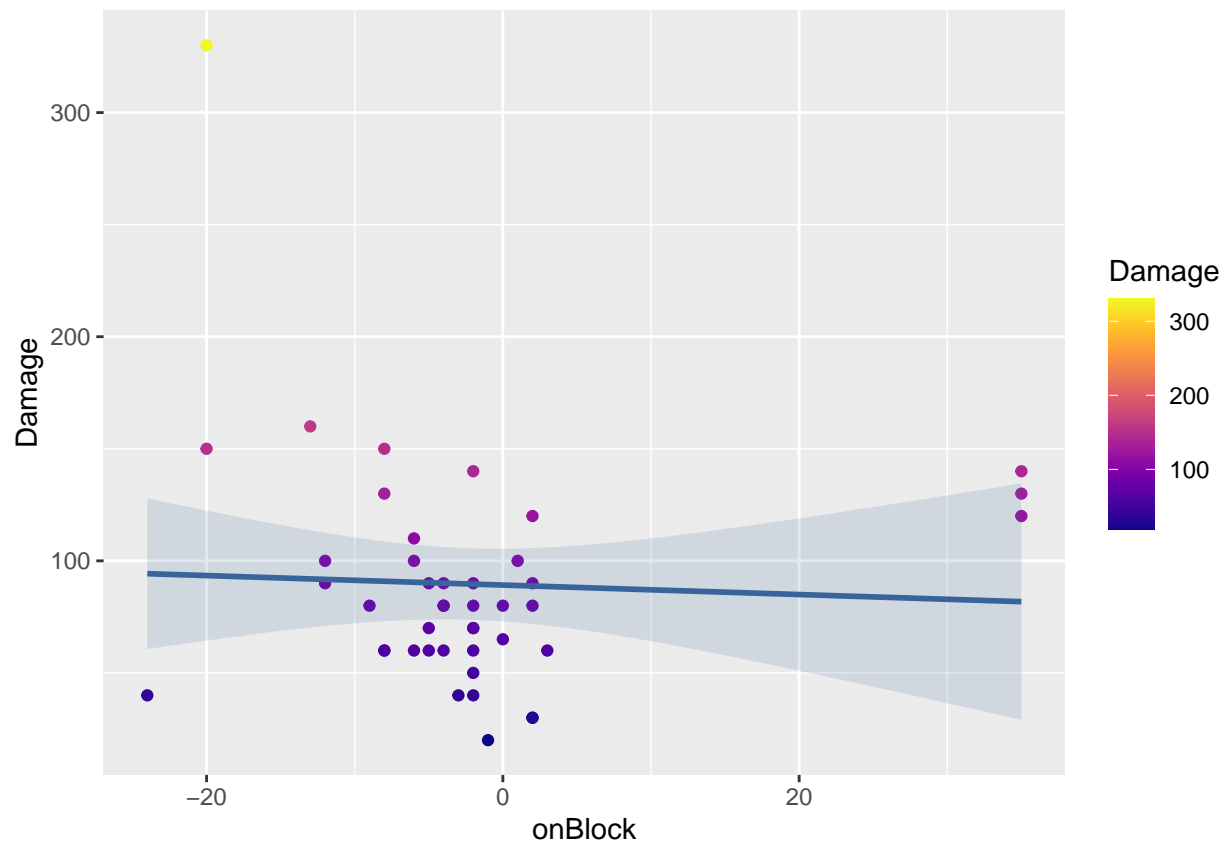


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 2.4098, df = 38, p-value = 0.02091
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.05931215 0.60678312
## sample estimates:
##      cor
## 0.3640944
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      131.181         1.298
## `geom_smooth()` using formula = 'y ~ x'
```

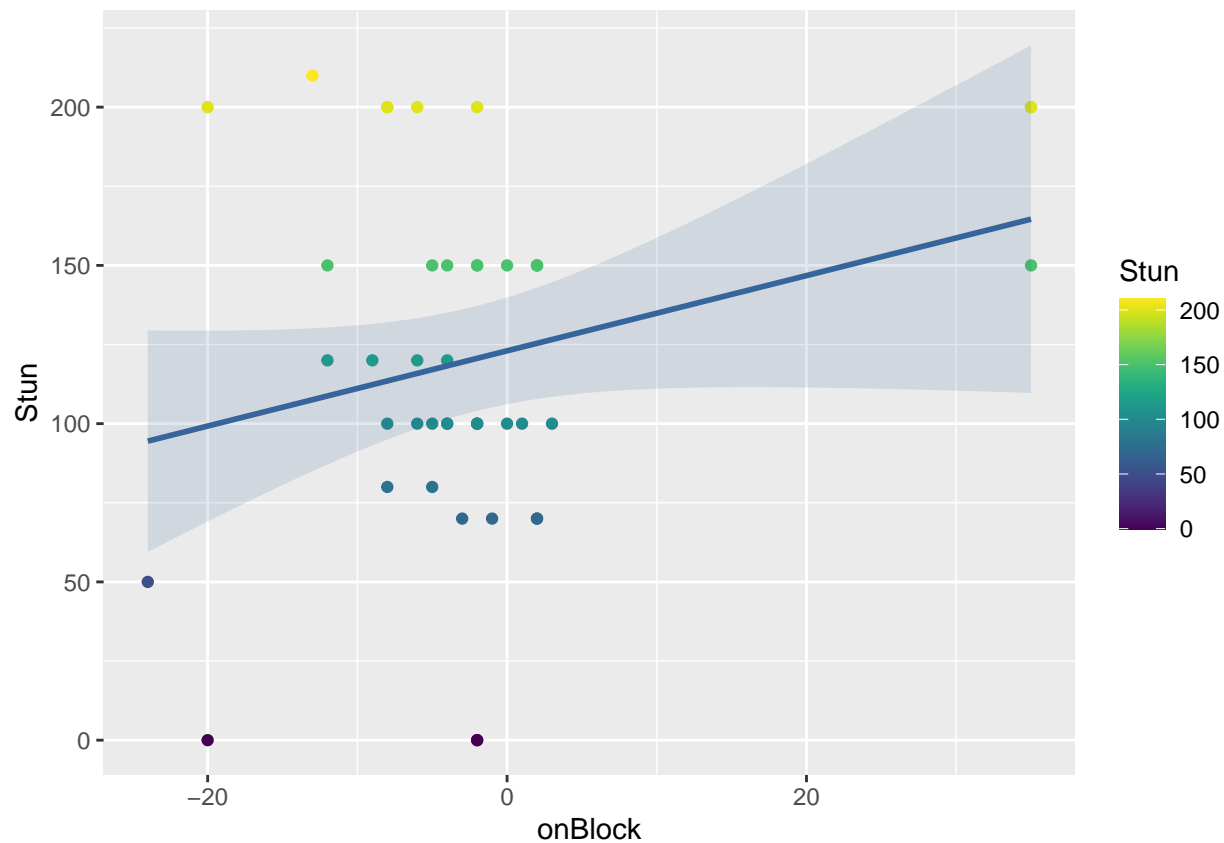


```
scatterplot(
  "data/characters/chun-li.csv",
  "Chun-Li",
  "#37659b"
)

##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -0.31535, df = 41, p-value = 0.7541
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.3444455 0.2549196
## sample estimates:
##      cor
## -0.04919045
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      89.1986      -0.2115
## `geom_smooth()` using formula = 'y ~ x'
```

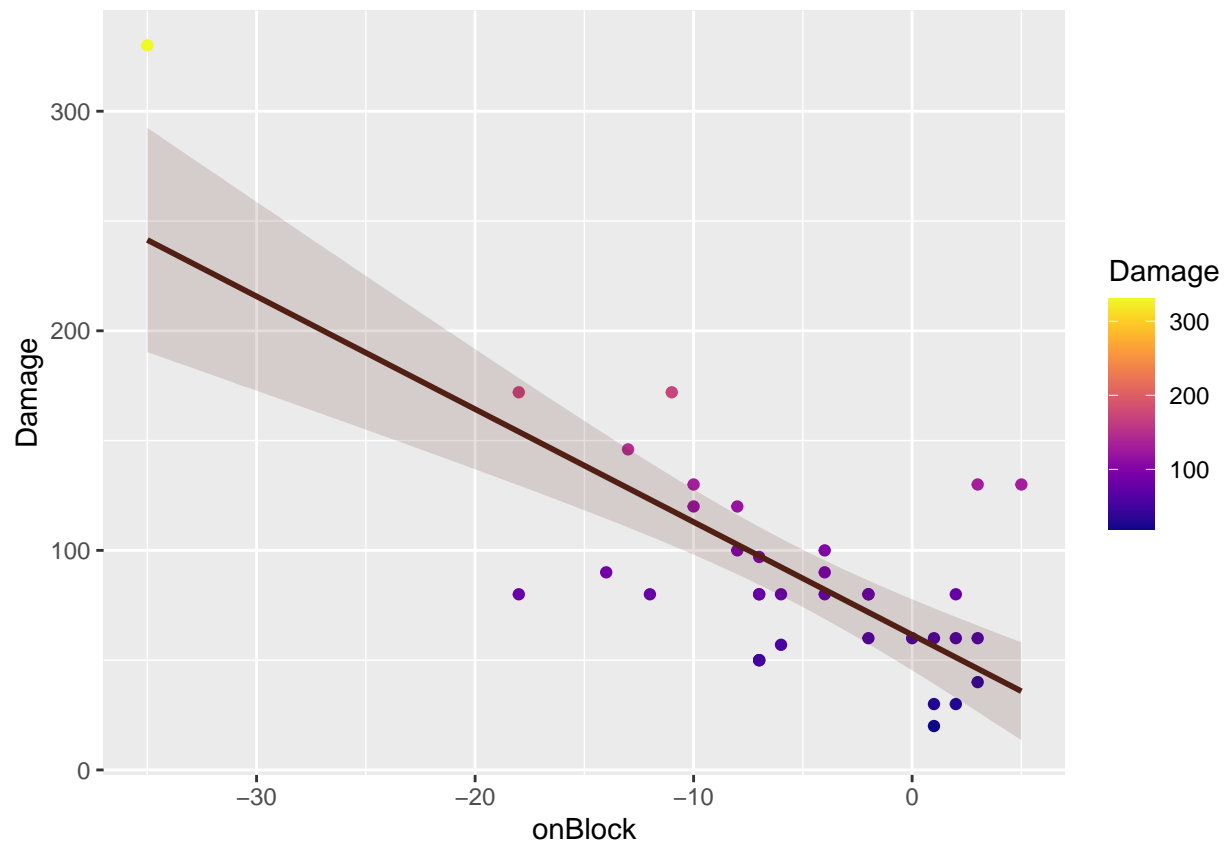


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 1.7032, df = 41, p-value = 0.09611
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.04691208 0.51744815
## sample estimates:
##      cor
## 0.2570536
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      123.008         1.189
## `geom_smooth()` using formula = 'y ~ x'
```

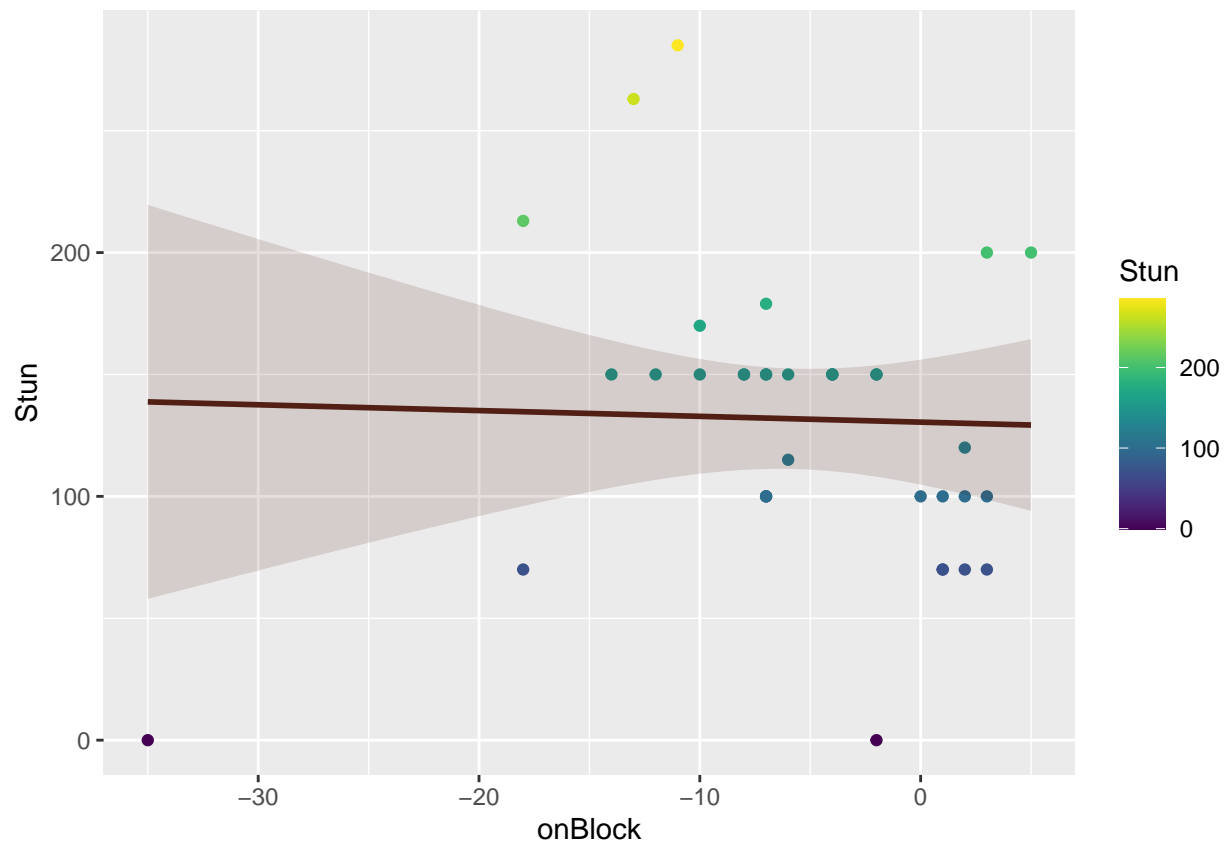


```
scatterplot(
  "data/characters/cody.csv",
  "Cody",
  "#521f15"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -6.19, df = 34, p-value = 4.886e-07
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8525565 -0.5248906
## sample estimates:
## cor
## -0.7279029
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 61.543 -5.138
## `geom_smooth()` using formula = 'y ~ x'
```

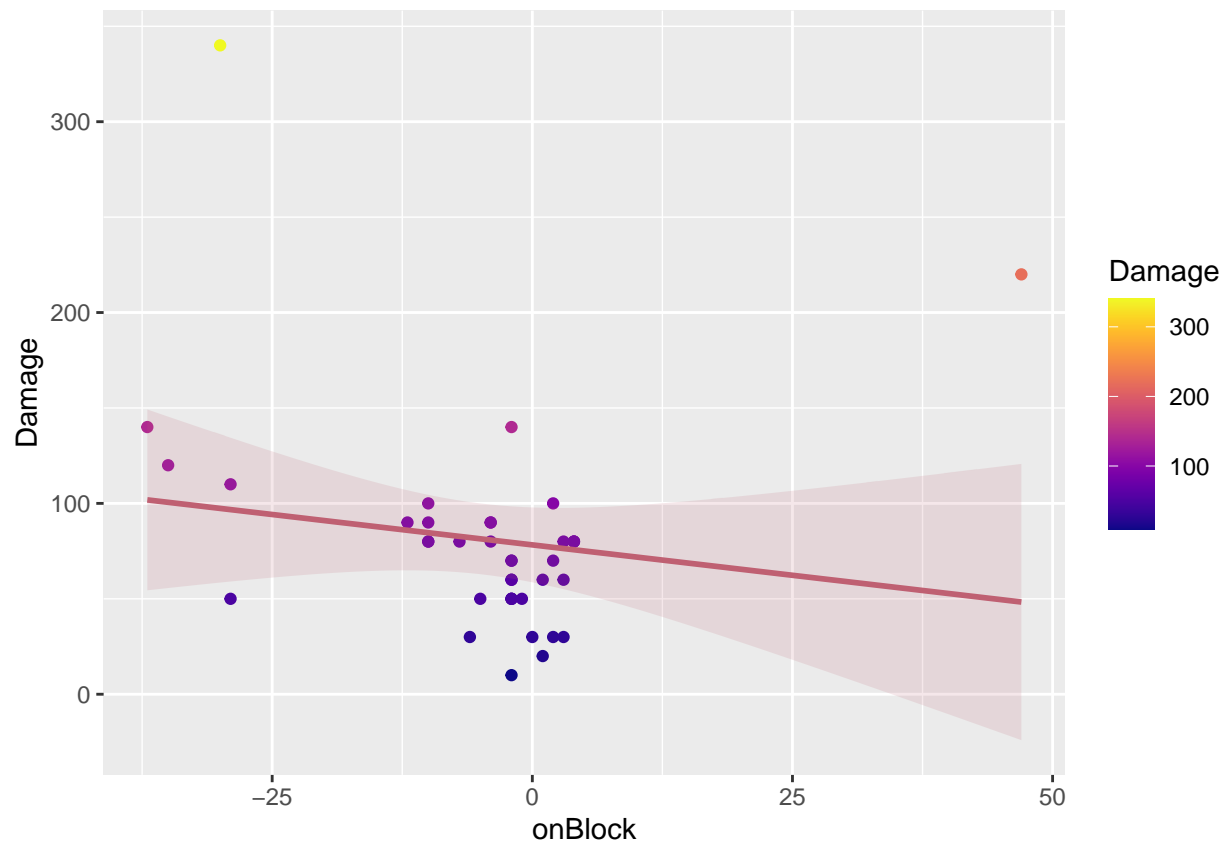


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -0.18069, df = 34, p-value = 0.8577
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.3558881 0.3006210
## sample estimates:
##      cor
## -0.03097391
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    130.4477      -0.2373
##
## `geom_smooth()` using formula = 'y ~ x'
```

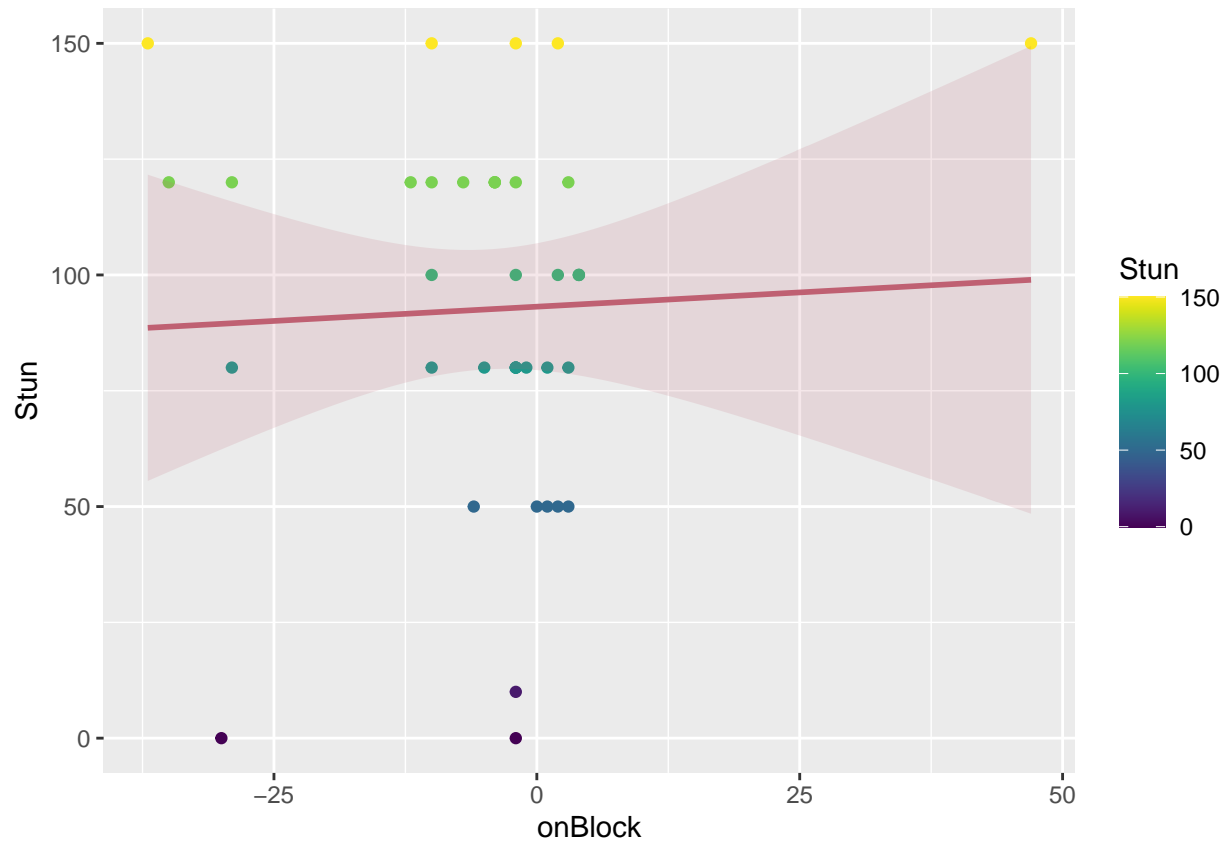


```
scatterplot(
  "data/characters/dan.csv",
  "Dan",
  "#bf6072"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -0.95461, df = 37, p-value = 0.346
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4486117 0.1687313
## sample estimates:
## cor
## -0.1550397
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 78.260 -0.637
## `geom_smooth()` using formula = 'y ~ x'
```



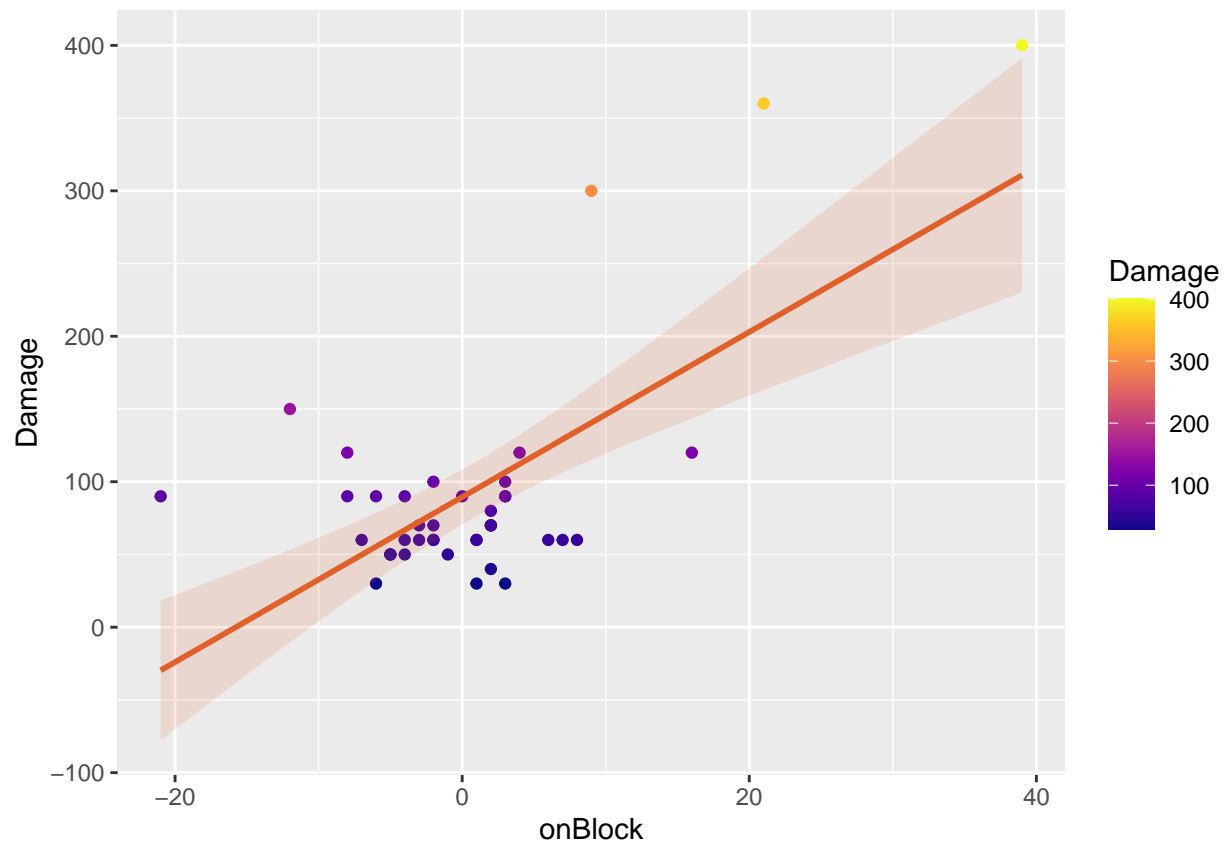
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.2648, df = 37, p-value = 0.7926
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2758098 0.3541493
## sample estimates:
##      cor
## 0.04349202
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      93.1489       0.1233
## `geom_smooth()` using formula = 'y ~ x'
```



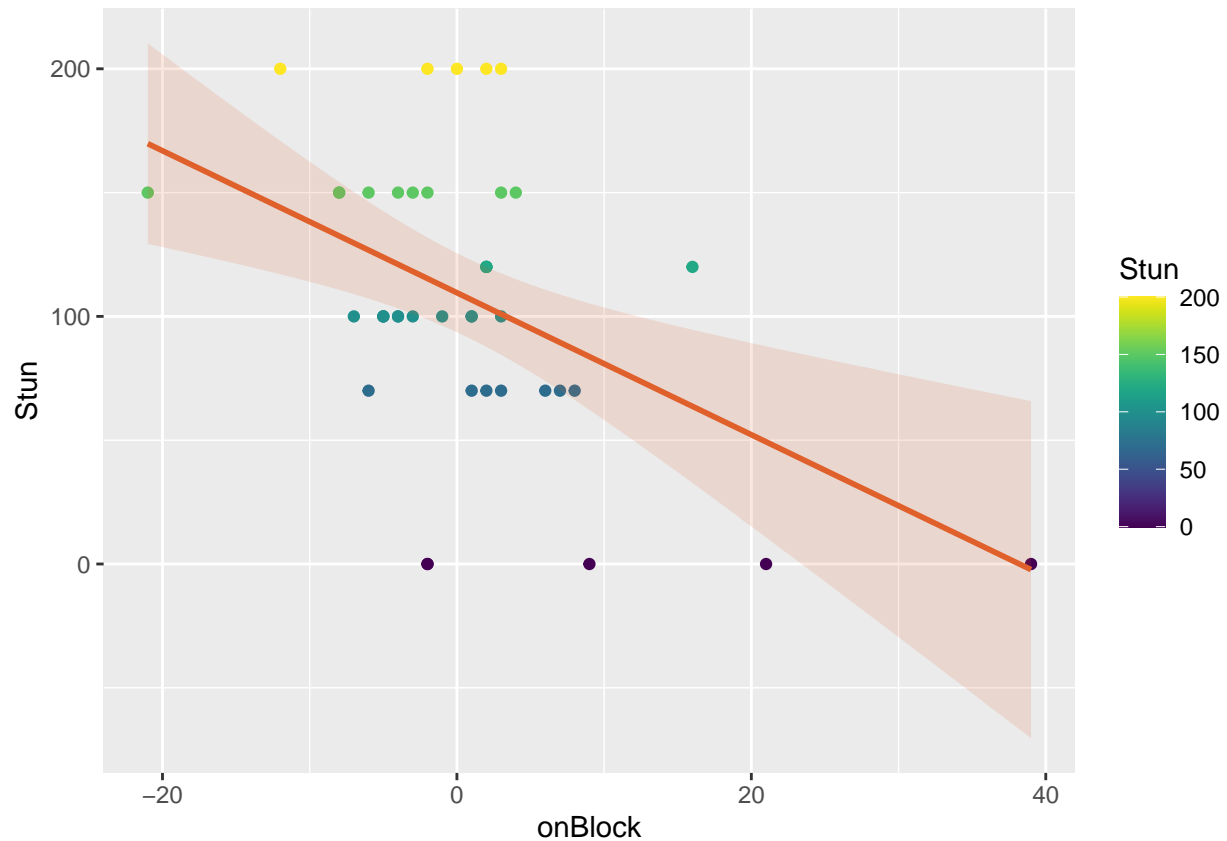
```
scatterplot(
  "data/characters/dhalsim.csv",
  "Dhalsim",
  "#e0602b"
)

##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = 5.6226, df = 39, p-value = 1.731e-06
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.4551452 0.8100131
## sample estimates:
##      cor
## 0.669104
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      89.467         5.674
##
## `geom_smooth()` using formula = 'y ~ x'
```



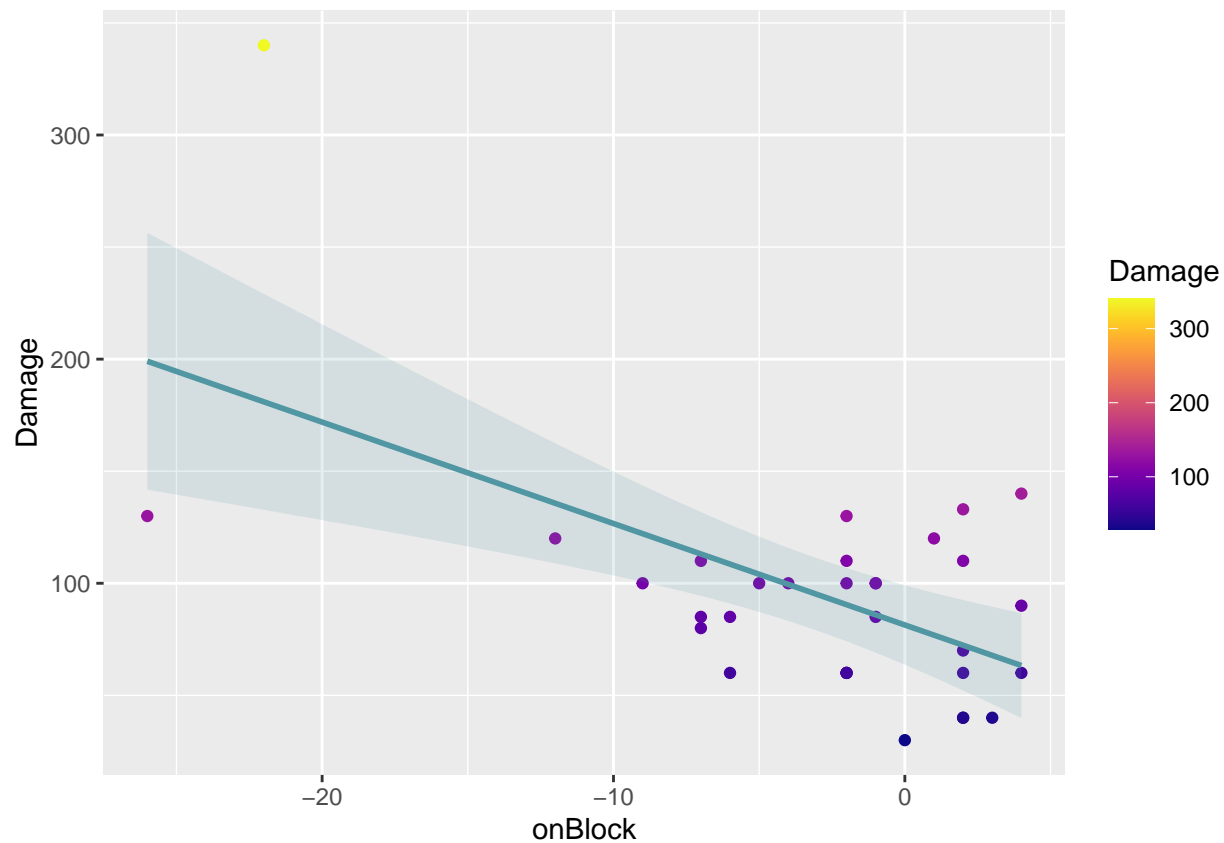


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -3.3646, df = 39, p-value = 0.00173
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.6823872 -0.1951366
## sample estimates:
##      cor
## -0.4743123
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    109.553      -2.867
## `geom_smooth()` using formula = 'y ~ x'
```

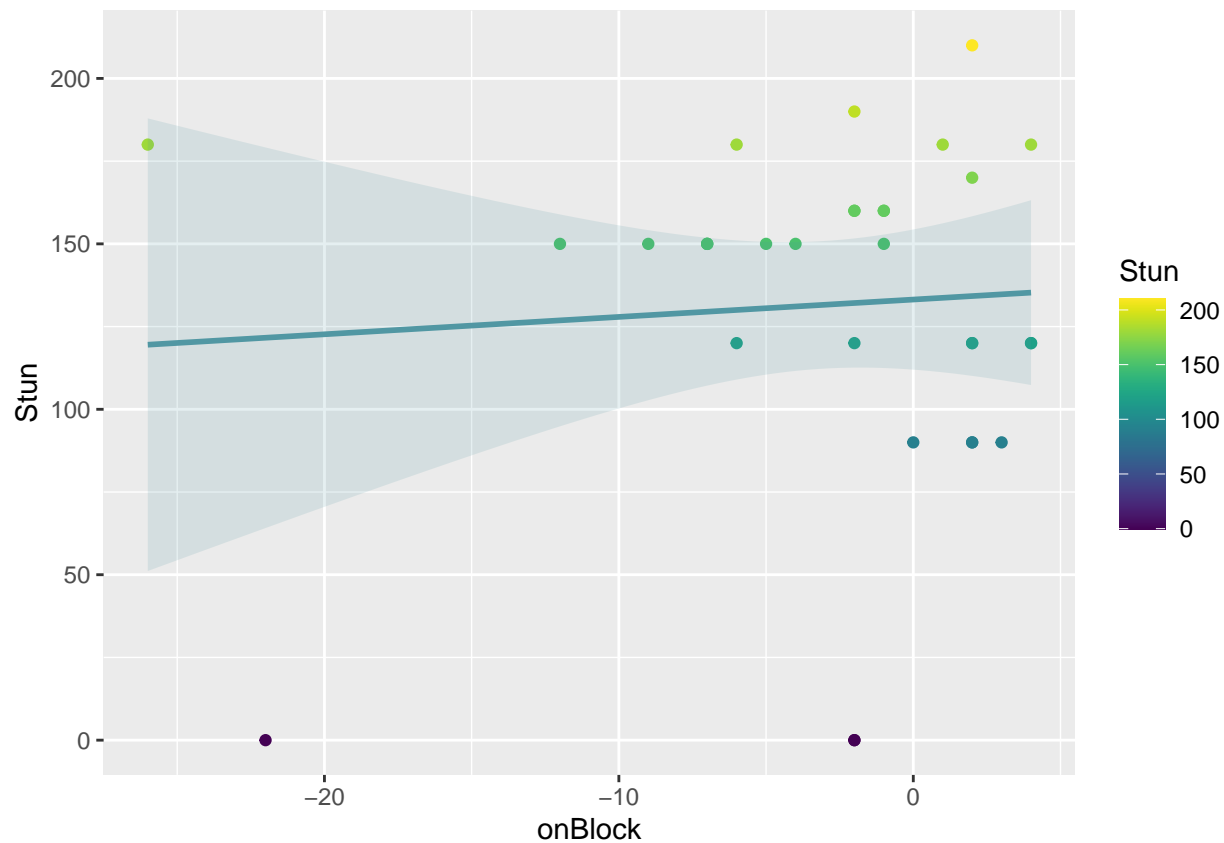


```
scatterplot(
  "data/characters/e_honda.csv",
  "E. Honda",
  "#5197a3"
)

##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -3.8563, df = 30, p-value = 0.0005658
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.7698463 -0.2840094
## sample estimates:
## cor
## -0.5756913
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 81.391 -4.525
## `geom_smooth()` using formula = 'y ~ x'
```

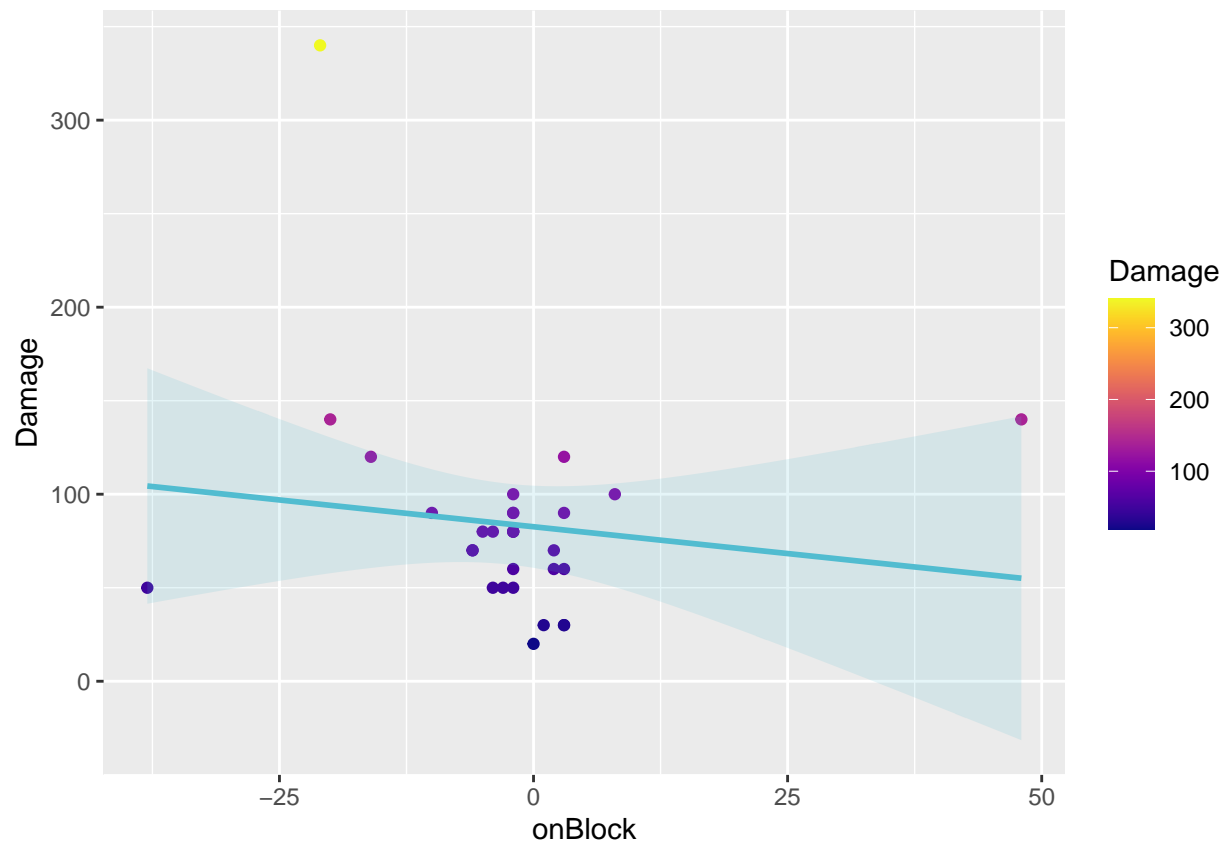


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.37463, df = 30, p-value = 0.7106
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2872916 0.4072422
## sample estimates:
##      cor
## 0.06823822
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    133.1700      0.5249
## `geom_smooth()` using formula = 'y ~ x'
```

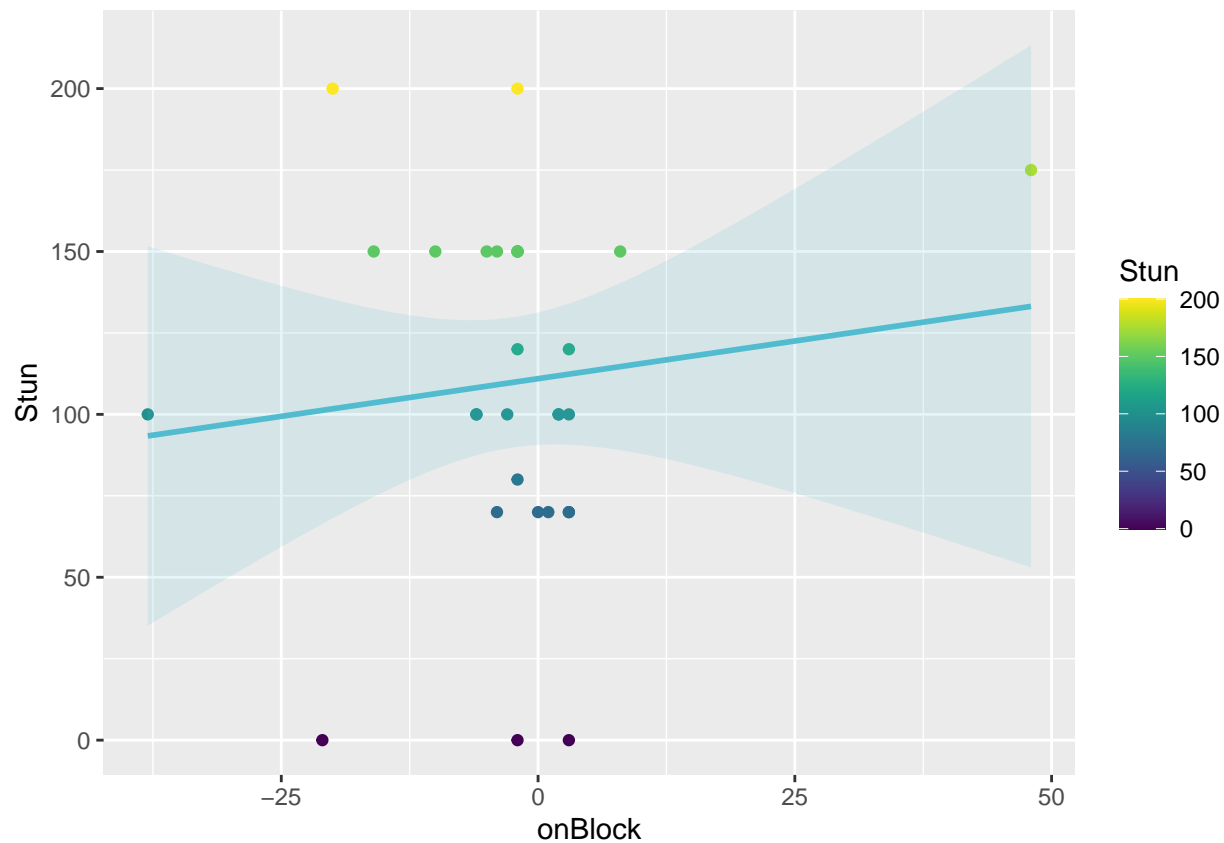


```
scatterplot(
  "data/characters/ed.csv",
  "Ed",
  "#51bcd0"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -0.70625, df = 28, p-value = 0.4859
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4701557 0.2393838
## sample estimates:
## cor
## -0.1322949
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 82.6051 -0.5733
## `geom_smooth()` using formula = 'y ~ x'
```

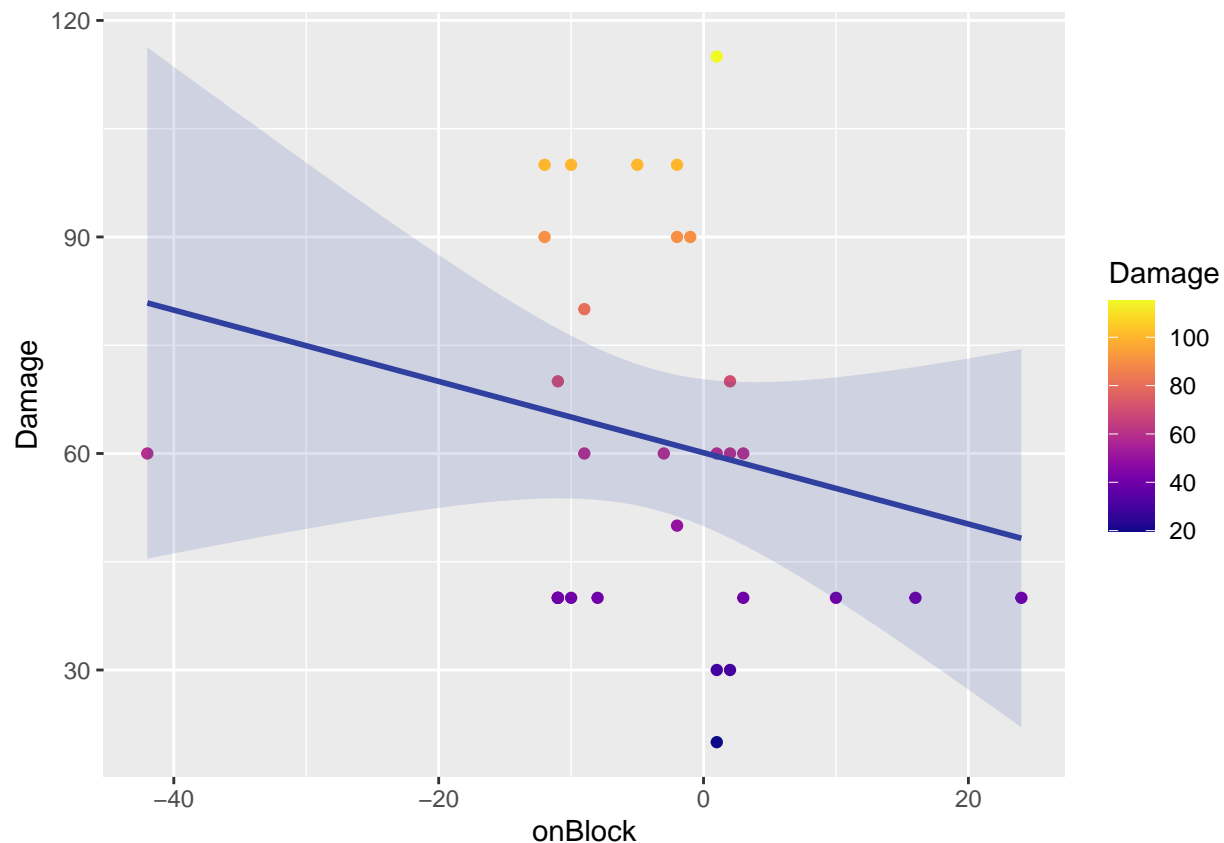


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.61574, df = 28, p-value = 0.543
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2553169 0.4568303
## sample estimates:
##      cor
## 0.1155841
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    110.9586      0.4624
## `geom_smooth()` using formula = 'y ~ x'
```

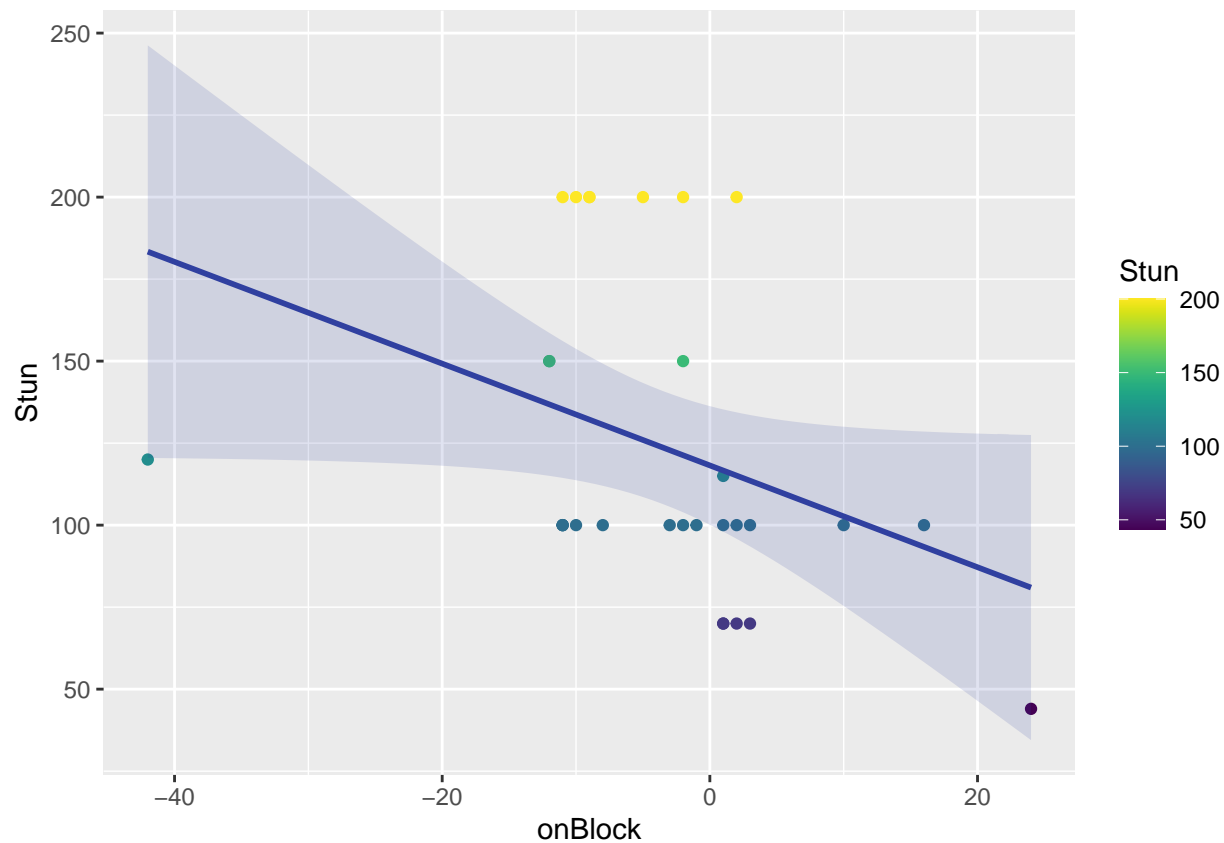


```
scatterplot(
  "data/characters/f_a_n_g.csv",
  "F.A.N.G",
  "#3040a0"
)

##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -1.144, df = 28, p-value = 0.2623
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.5311466 0.1612302
## sample estimates:
## cor
## -0.2113134
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 60.1040 -0.4941
## `geom_smooth()` using formula = 'y ~ x'
```



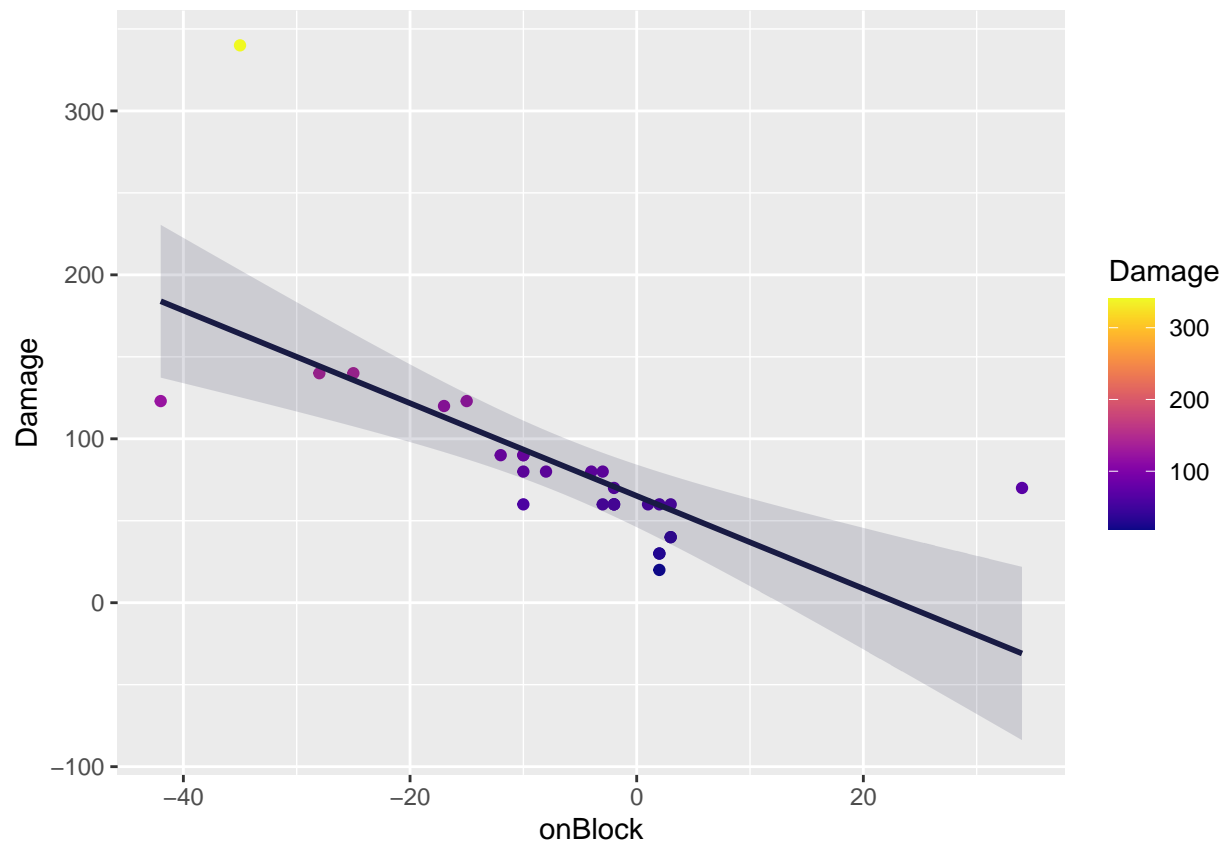
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -2.023, df = 28, p-value = 0.05271
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.635604726 0.003626133
## sample estimates:
##      cor
## -0.3571096
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      118.203       -1.552
## `geom_smooth()` using formula = 'y ~ x'
```



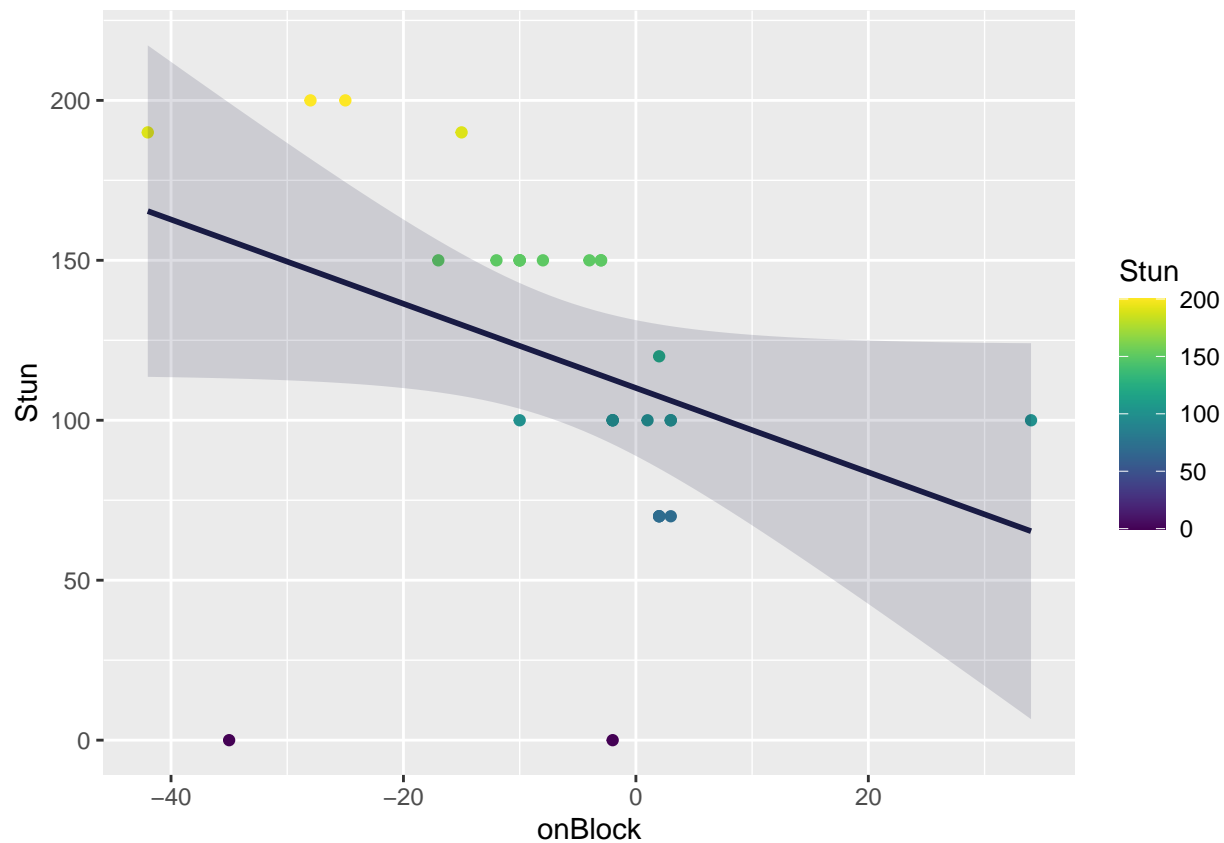
```
scatterplot(
  "data/characters/falke.csv",
  "Falke",
  "#191b44"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -4.7335, df = 26, p-value = 6.792e-05
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8401722 -0.4117970
## sample estimates:
## cor
## -0.6803504
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 65.159 -2.827
## `geom_smooth()` using formula = 'y ~ x'
```



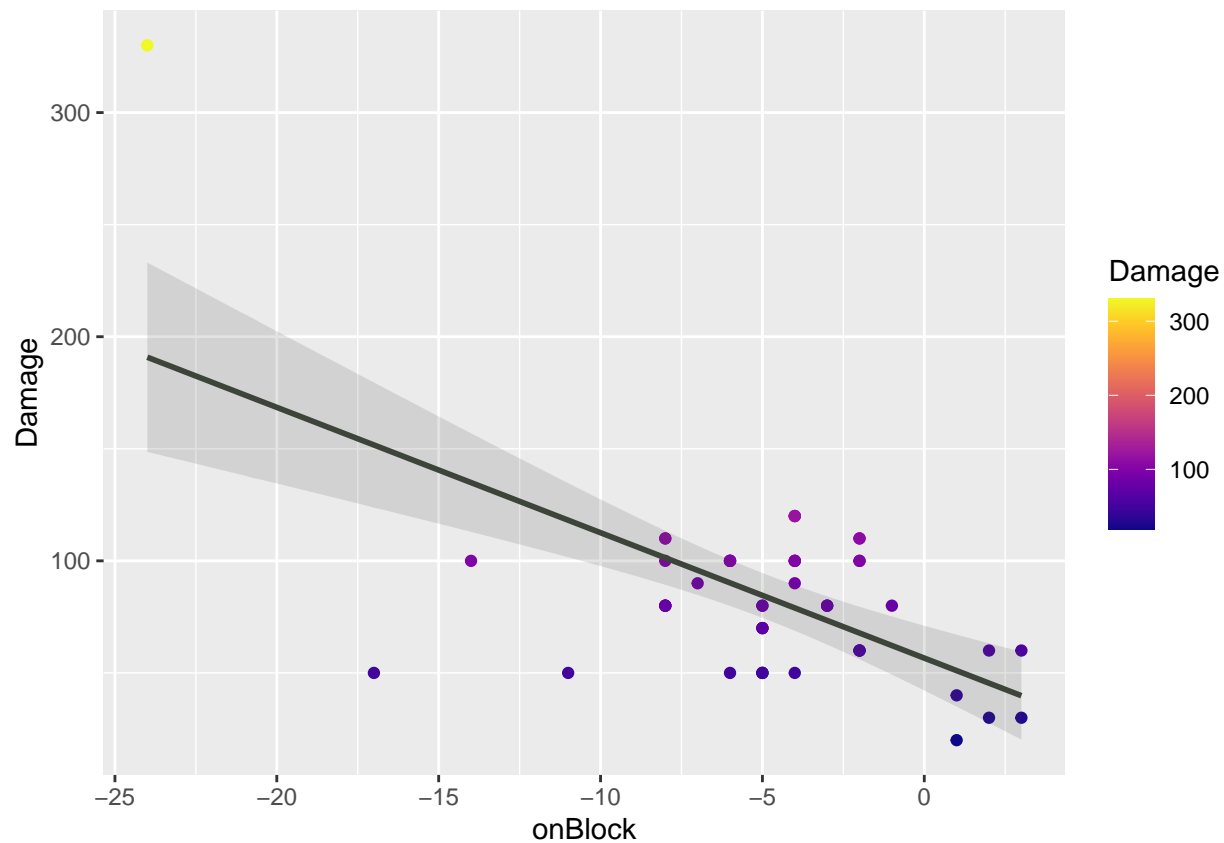


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -1.9831, df = 26, p-value = 0.05802
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.64792513 0.01227076
## sample estimates:
##      cor
## -0.3624655
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      110.089       -1.317
## `geom_smooth()` using formula = 'y ~ x'
```

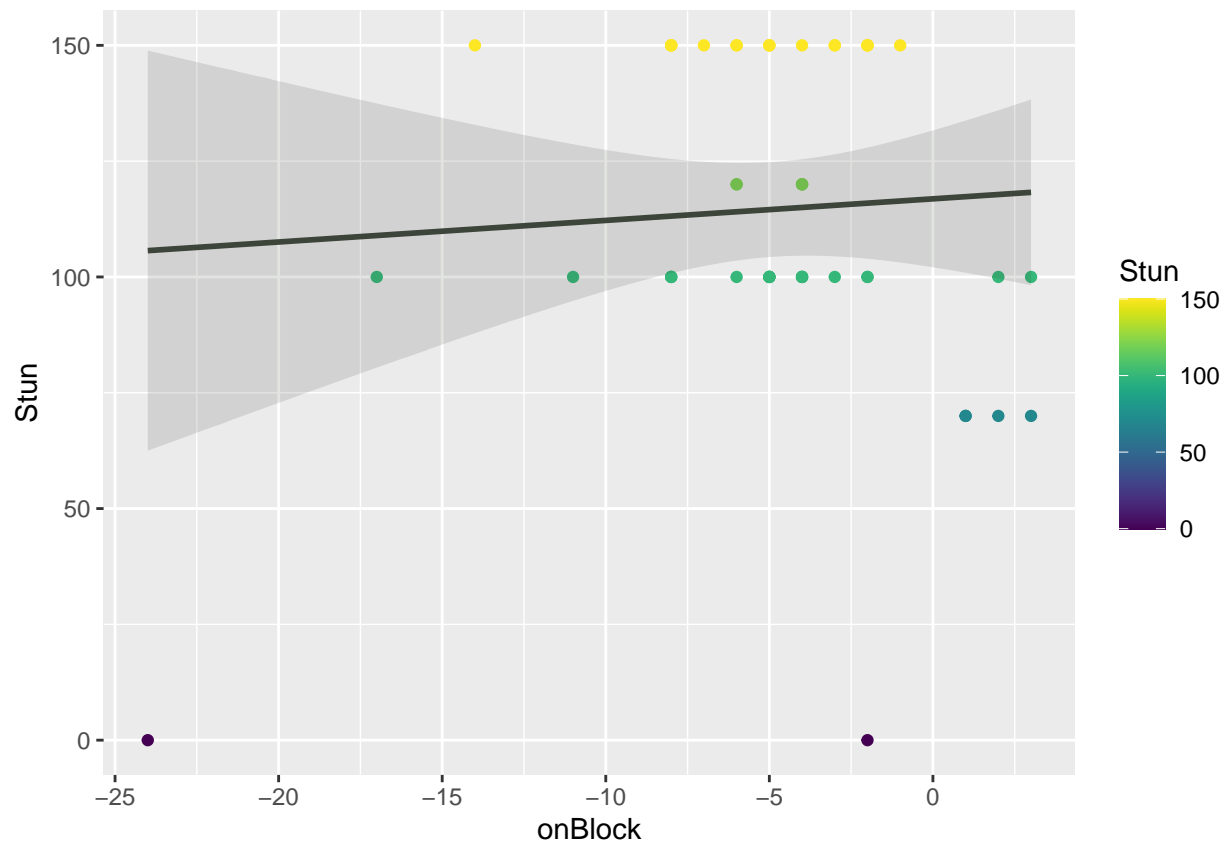


```
scatterplot(
  "data/characters/g.csv",
  "G",
  "#3d453a"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -5.2458, df = 48, p-value = 3.474e-06
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.7551176 -0.3909969
## sample estimates:
## cor
## -0.6036478
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 56.617 -5.593
## `geom_smooth()` using formula = 'y ~ x'
```

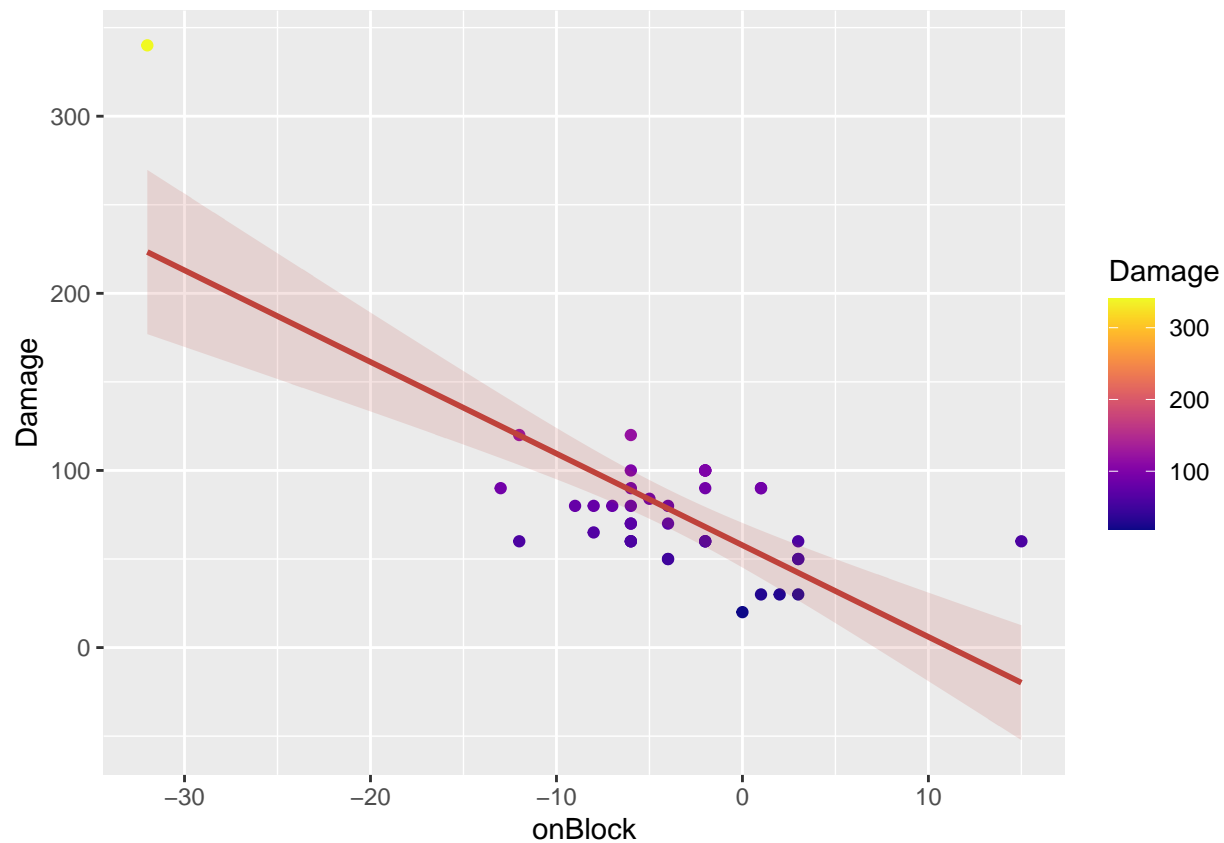


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.42725, df = 48, p-value = 0.6711
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2205755 0.3341737
## sample estimates:
##      cor
## 0.06155128
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    116.8641      0.4659
## `geom_smooth()` using formula = 'y ~ x'
```

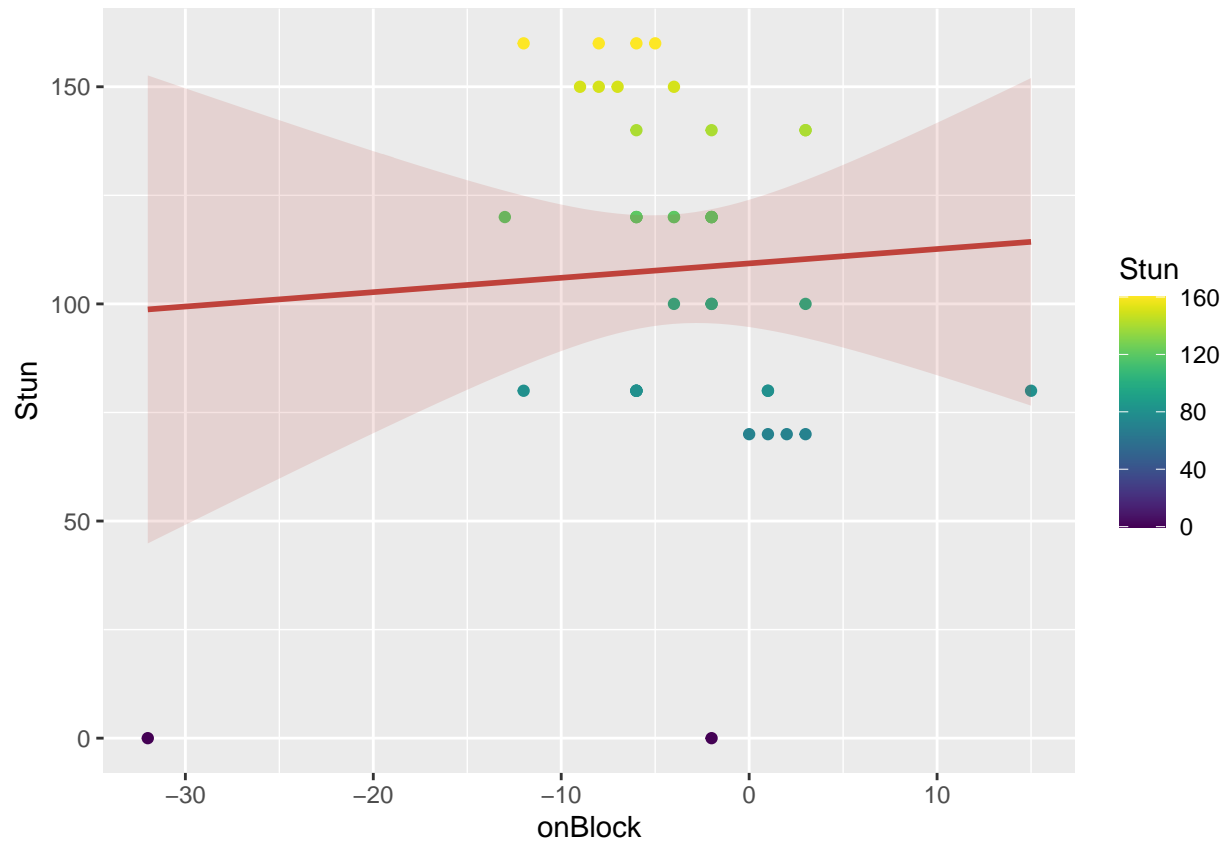


```
scatterplot(
  "data/characters/gill.csv",
  "Gill",
  "#bf423b"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -6.5047, df = 38, p-value = 1.159e-07
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8460498 -0.5353787
## sample estimates:
## cor
## -0.7258364
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 57.782 -5.173
## `geom_smooth()` using formula = 'y ~ x'
```

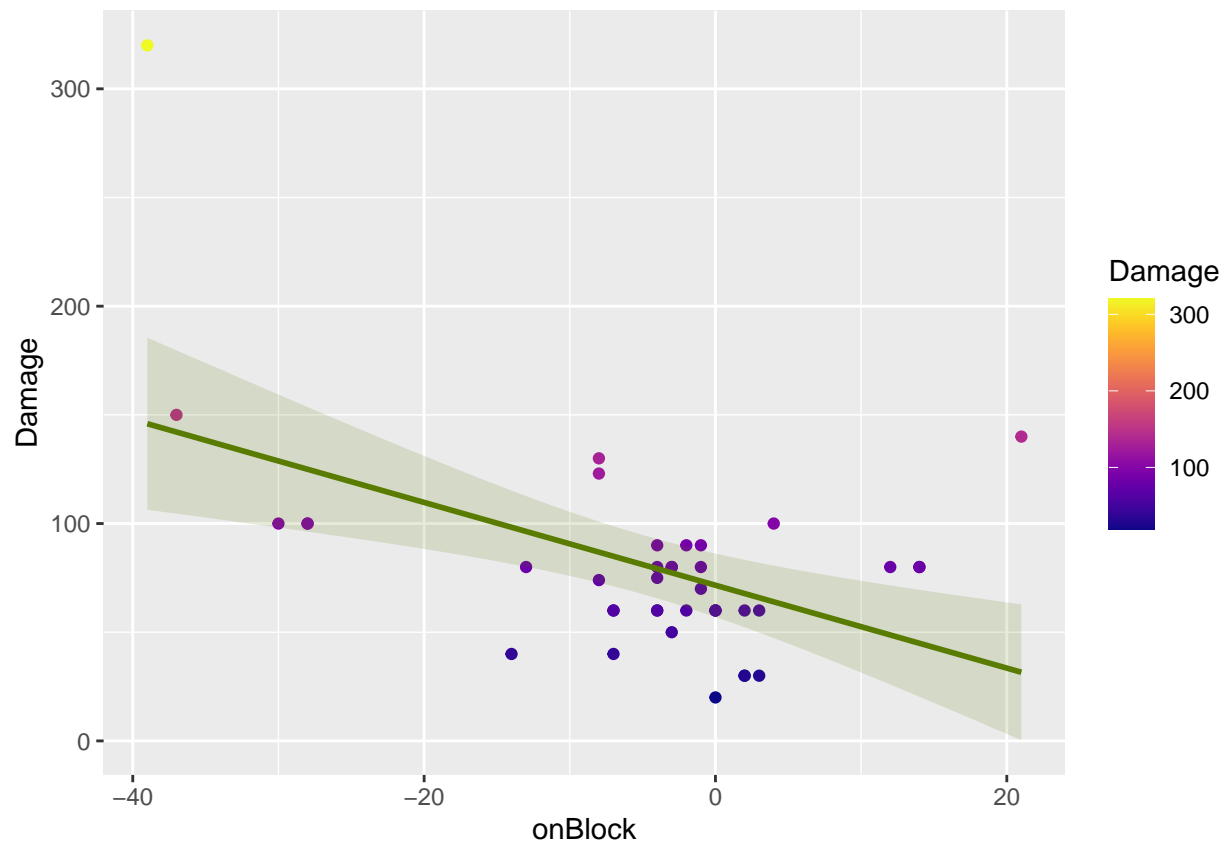


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.3582, df = 38, p-value = 0.7222
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.258165 0.362960
## sample estimates:
##      cor
## 0.05800948
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    109.3245      0.3311
## `geom_smooth()` using formula = 'y ~ x'
```

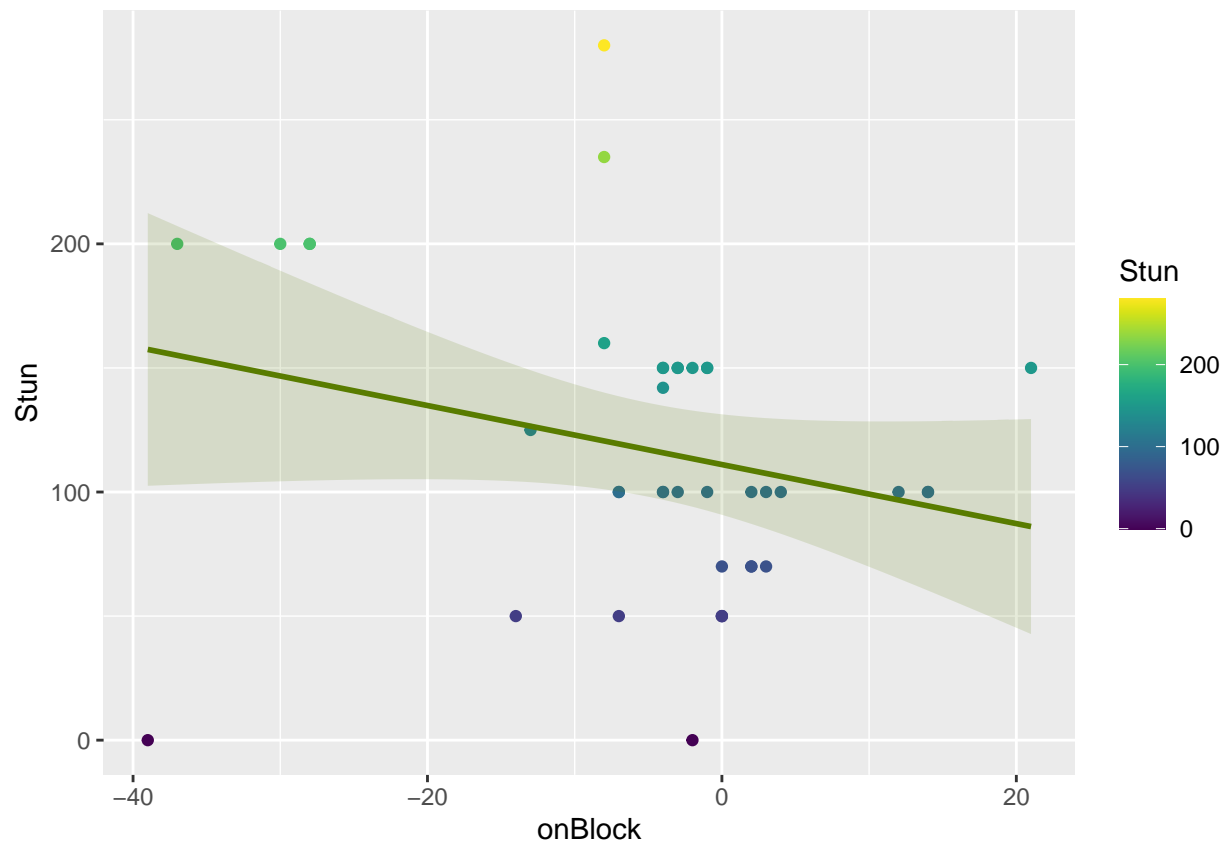


```
scatterplot(
  "data/characters/guile.csv",
  "Guile",
  "#597c00"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -3.5439, df = 38, p-value = 0.001064
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.7010686 -0.2212468
## sample estimates:
## cor
## -0.4984058
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 71.605 -1.906
## `geom_smooth()` using formula = 'y ~ x'
```



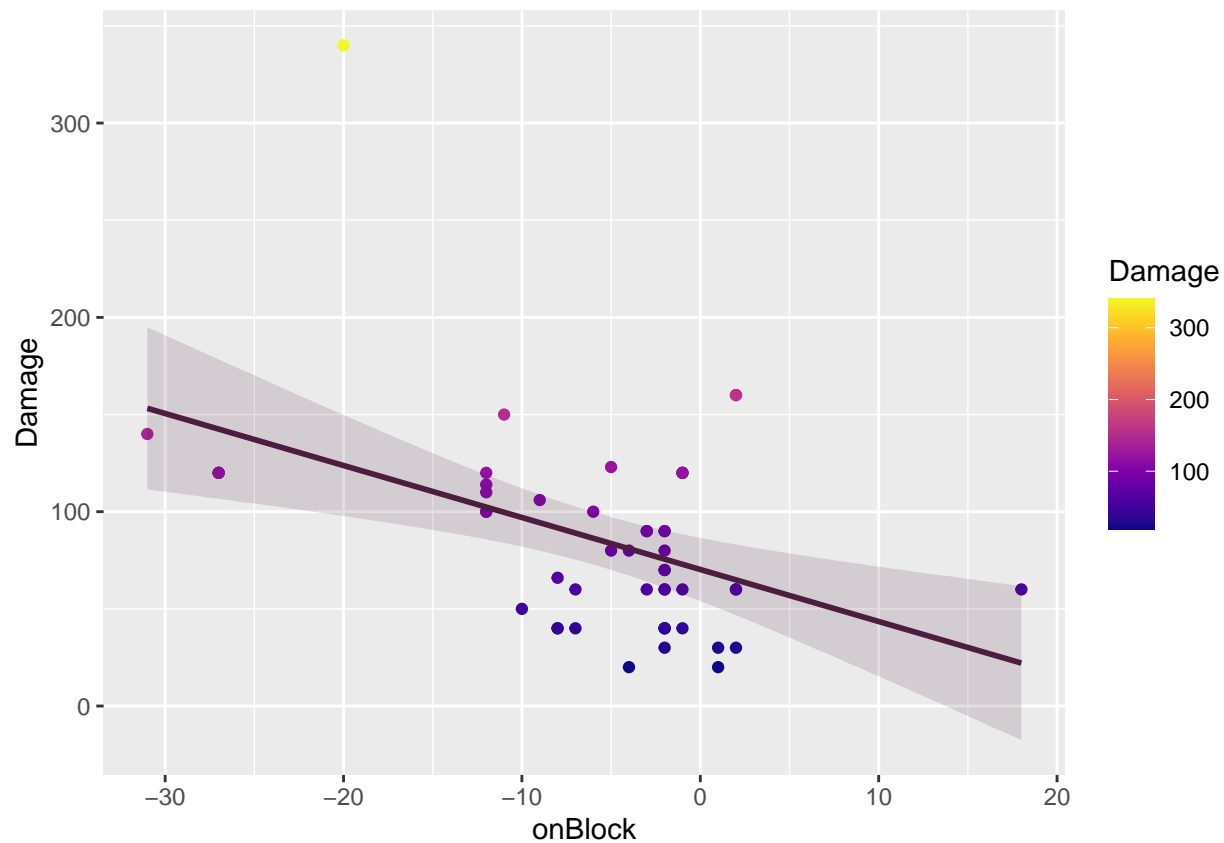
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -1.5951, df = 38, p-value = 0.119
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.52133234 0.06616775
## sample estimates:
##      cor
## -0.250505
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      111.06         -1.19
## `geom_smooth()` using formula = 'y ~ x'
```



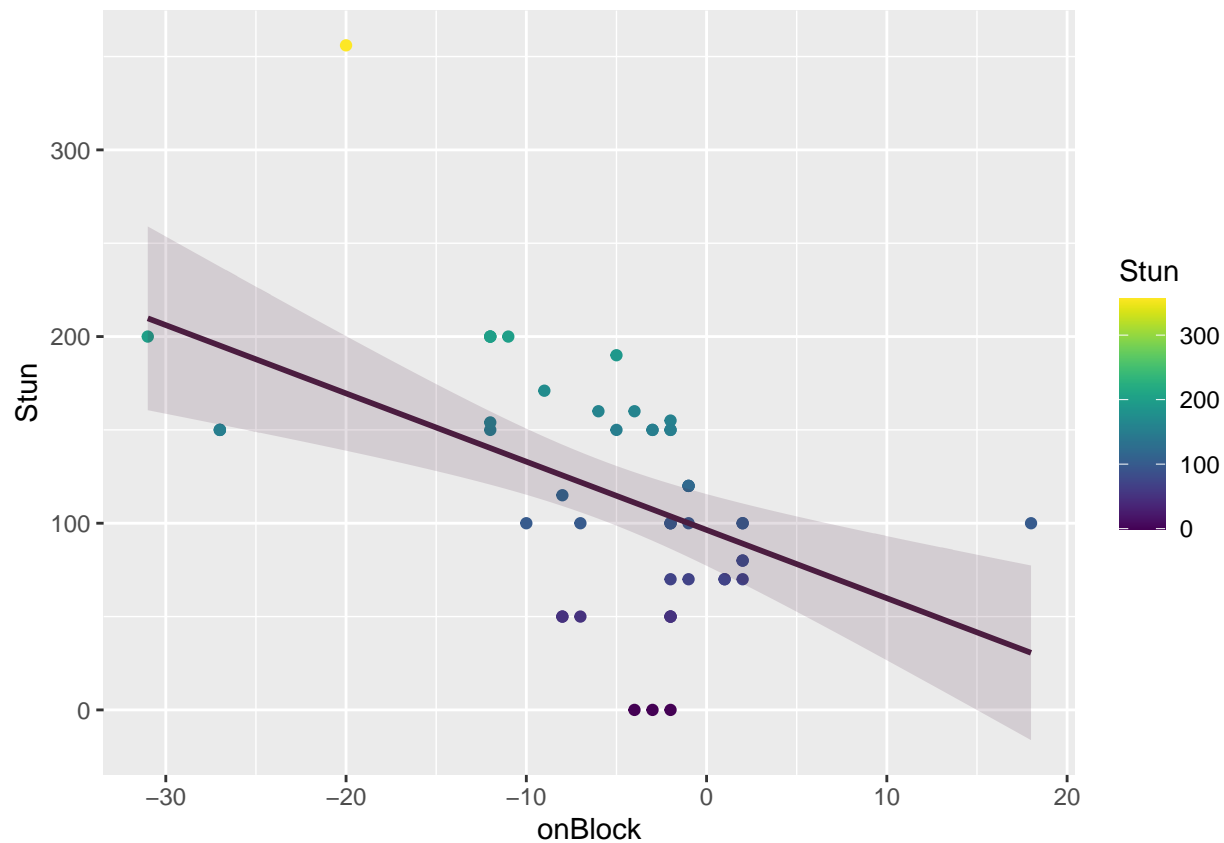
```
scatterplot(
  "data/characters/ibuki.csv",
  "Ibuki",
  "#4b1d40"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -3.4336, df = 48, p-value = 0.001236
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.6429362 -0.1890798
## sample estimates:
## cor
## -0.4440568
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 70.260 -2.676
## `geom_smooth()` using formula = 'y ~ x'
```



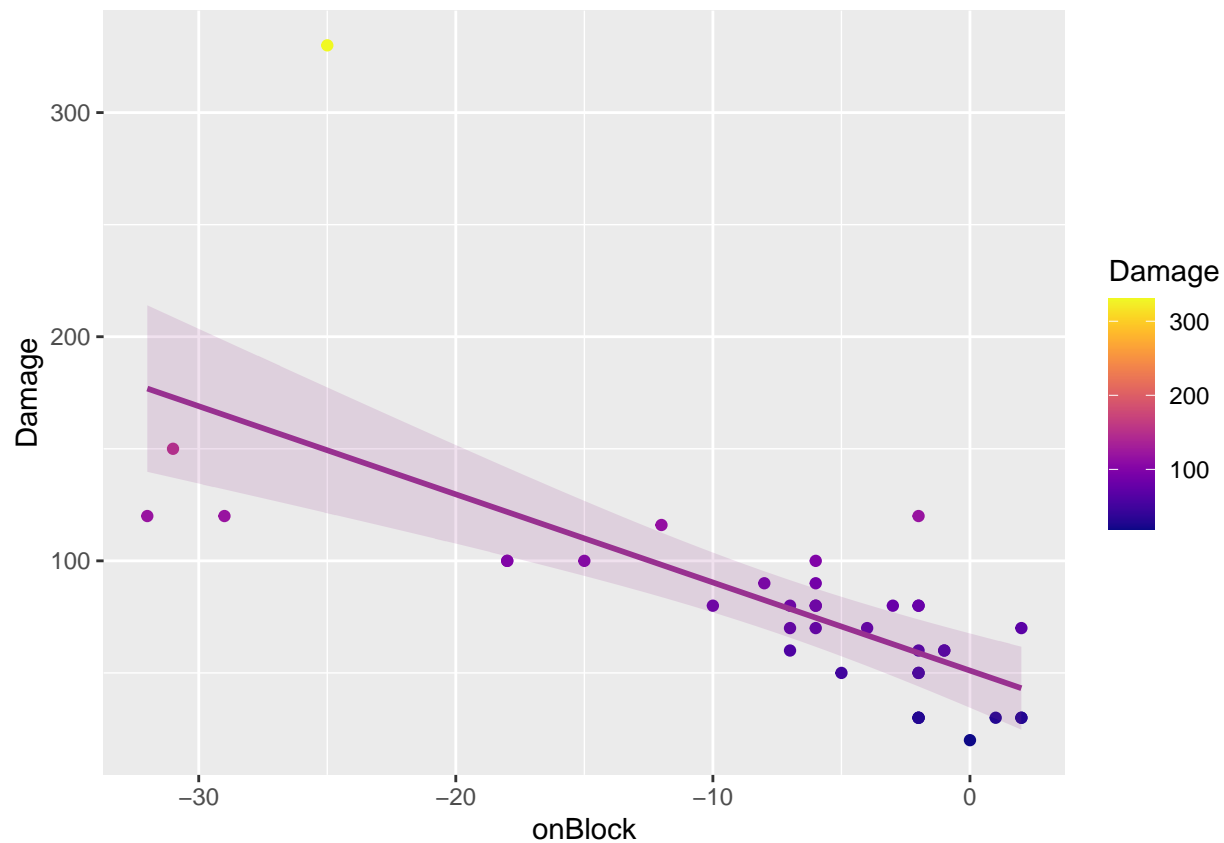


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -3.9785, df = 48, p-value = 0.0002333
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.6818231 -0.2549808
## sample estimates:
##      cor
## -0.4979849
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      96.409      -3.657
## `geom_smooth()` using formula = 'y ~ x'
```

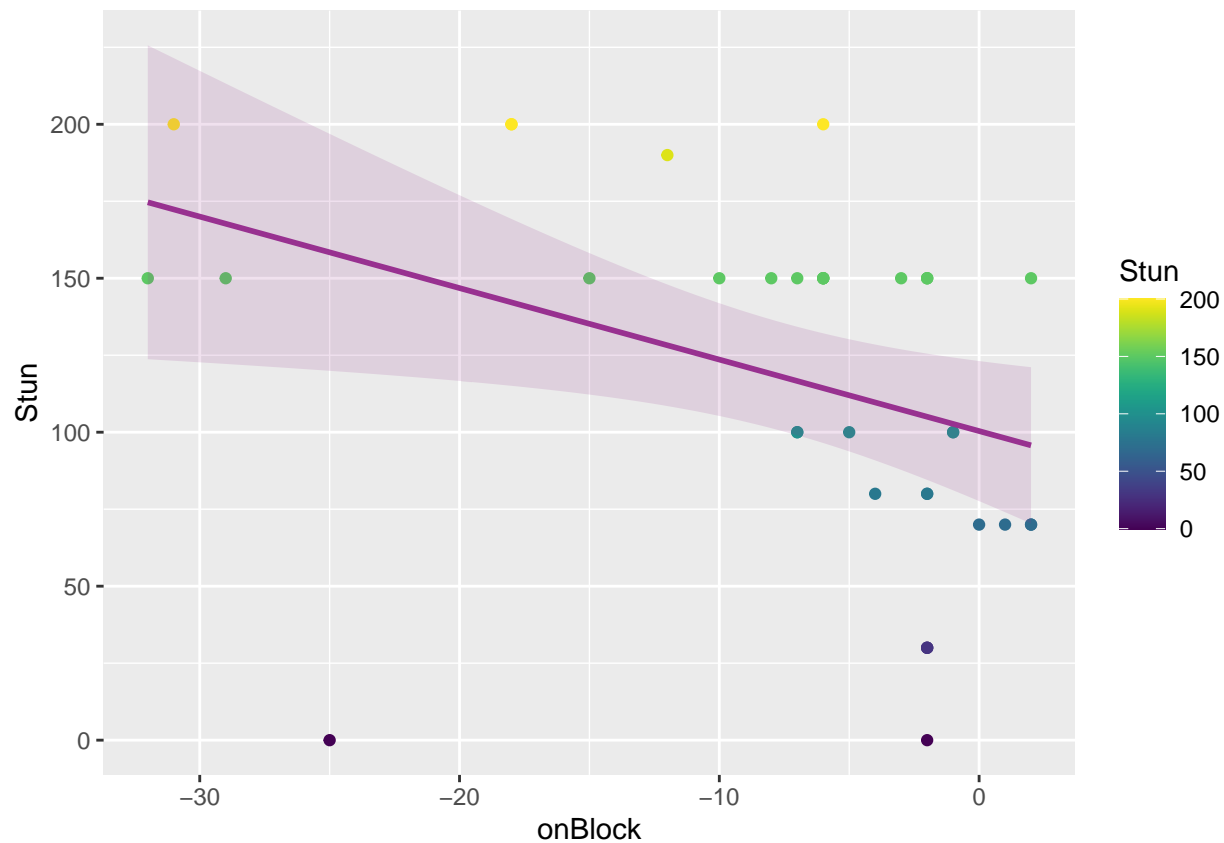


```
scatterplot(
  "data/characters/juri.csv",
  "Juri",
  "#983190"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -5.6304, df = 35, p-value = 2.371e-06
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8283788 -0.4704791
## sample estimates:
## cor
## -0.6894027
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 51.044 -3.932
## `geom_smooth()` using formula = 'y ~ x'
```

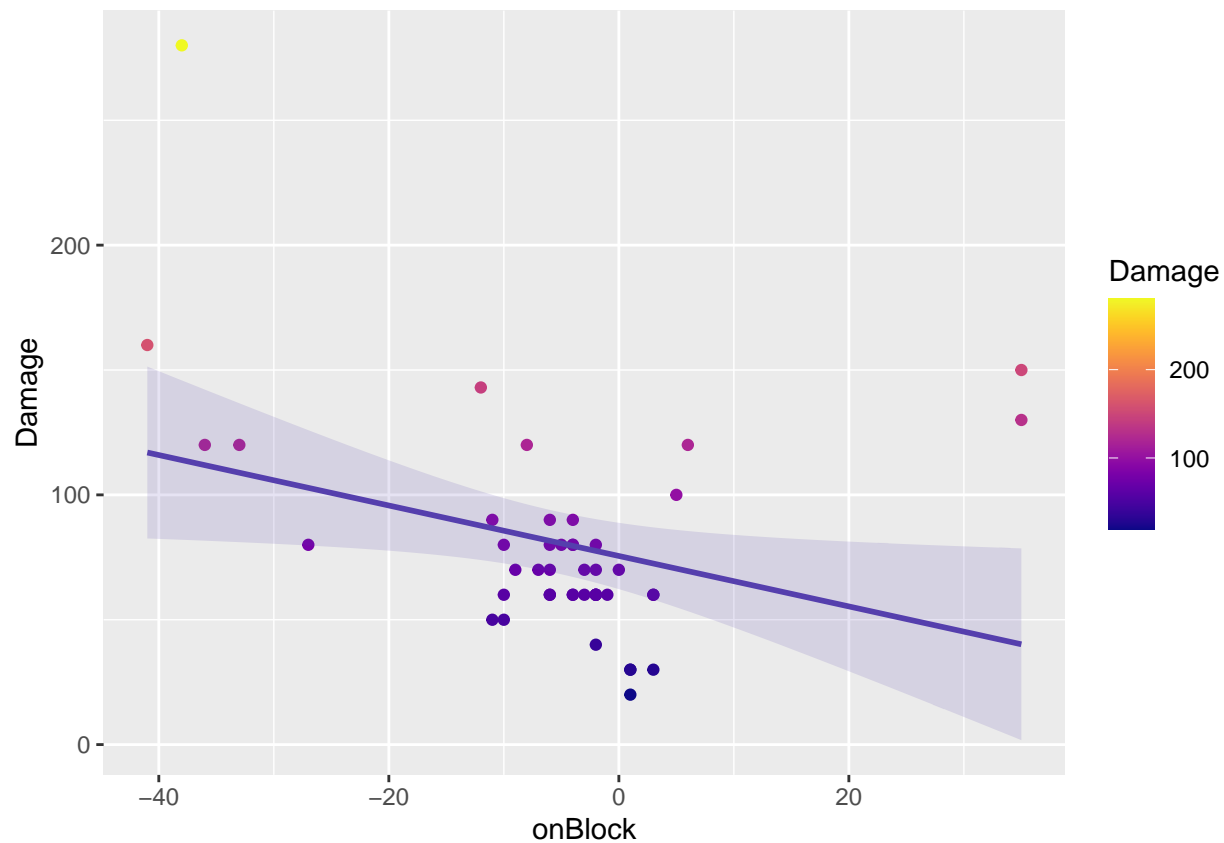


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -2.4235, df = 35, p-value = 0.02068
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.62618133 -0.06276476
## sample estimates:
##      cor
## -0.3790745
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    100.375      -2.322
## `geom_smooth()` using formula = 'y ~ x'
```

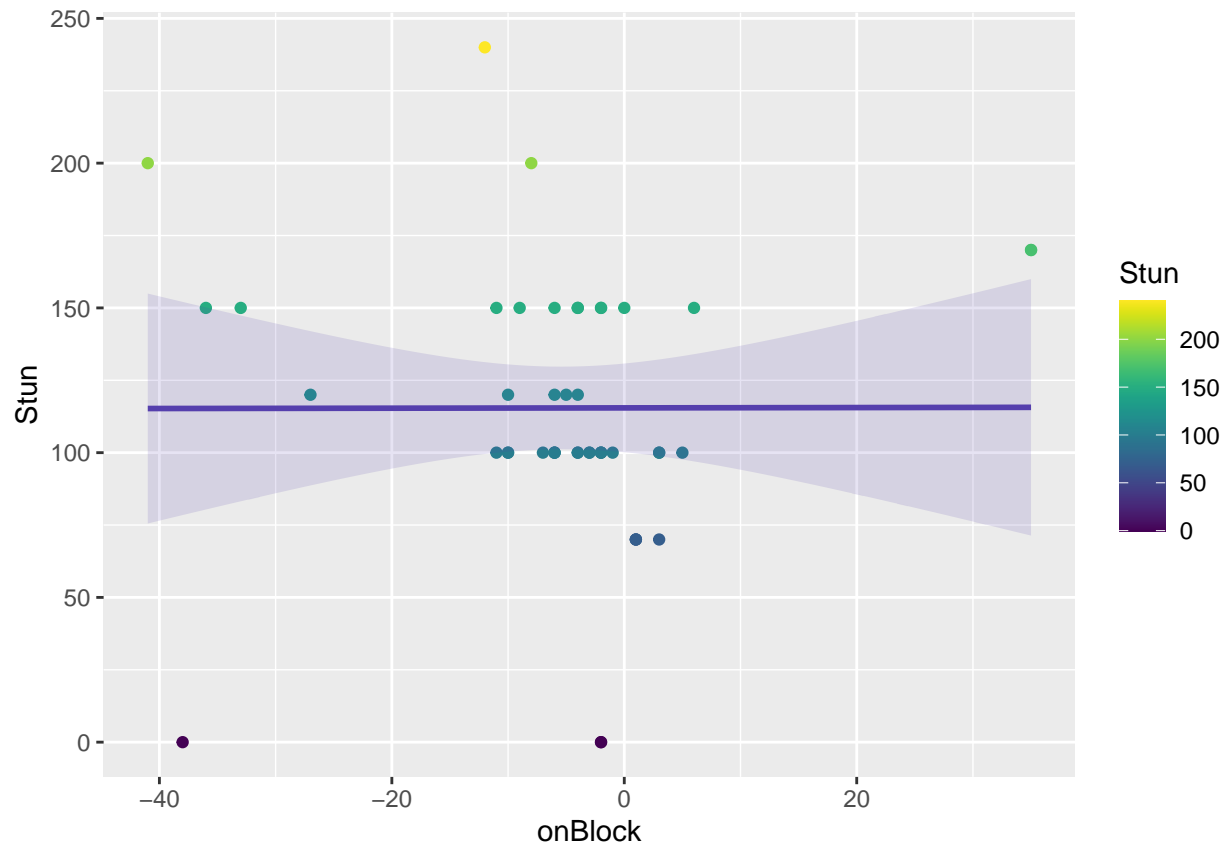


```
scatterplot(
  "data/characters/kage.csv",
  "Kage",
  "#553fad"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -2.2604, df = 44, p-value = 0.0288
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.56037547 -0.03558193
## sample estimates:
## cor
## -0.3225483
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      75.53      -1.01
##
## `geom_smooth()` using formula = 'y ~ x'
```

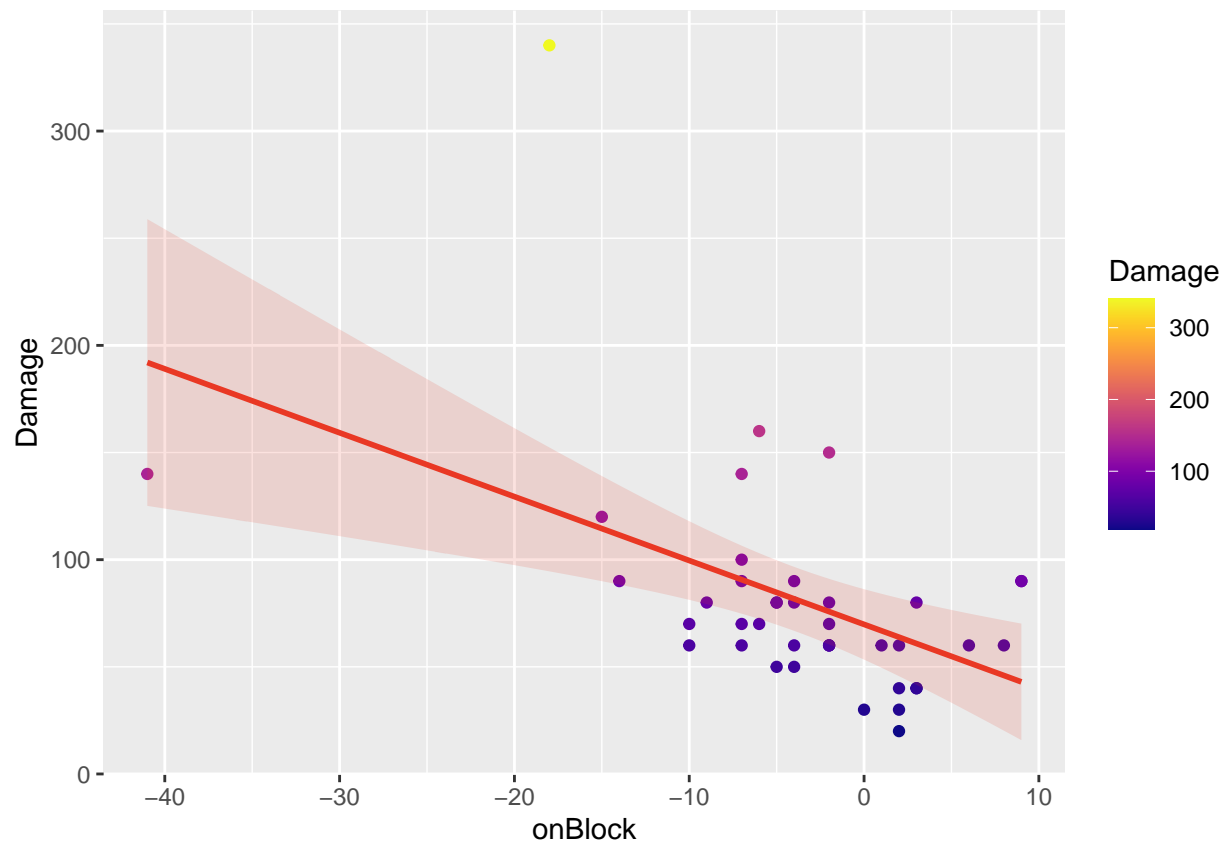


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.010494, df = 44, p-value = 0.9917
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2888487 0.2917461
## sample estimates:
##      cor
## 0.001581991
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##  1.155e+02    5.412e-03
## `geom_smooth()` using formula = 'y ~ x'
```

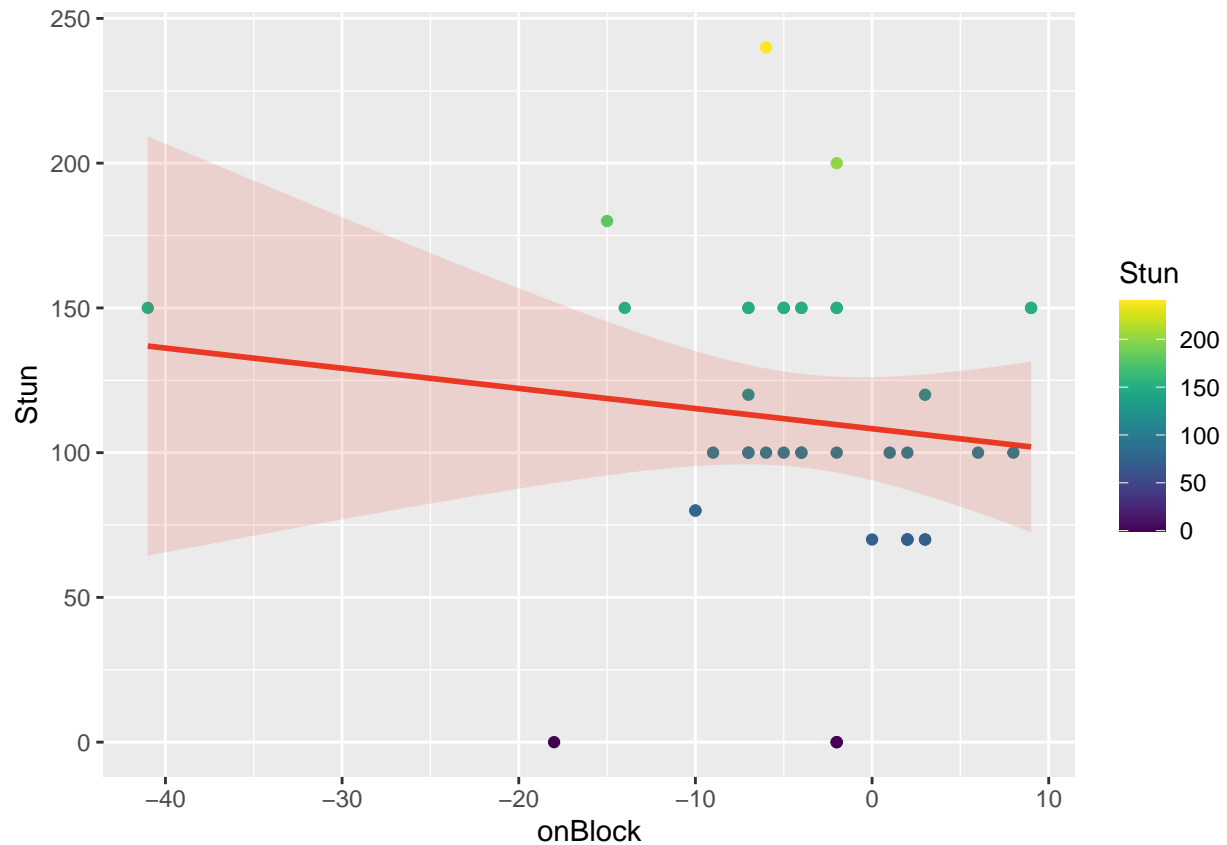


```
scatterplot(
  "data/characters/karin.csv",
  "Karin",
  "#e93824"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -3.4299, df = 38, p-value = 0.001468
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.6927893 -0.2058822
## sample estimates:
## cor
## -0.4862089
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 69.801 -2.981
## `geom_smooth()` using formula = 'y ~ x'
```



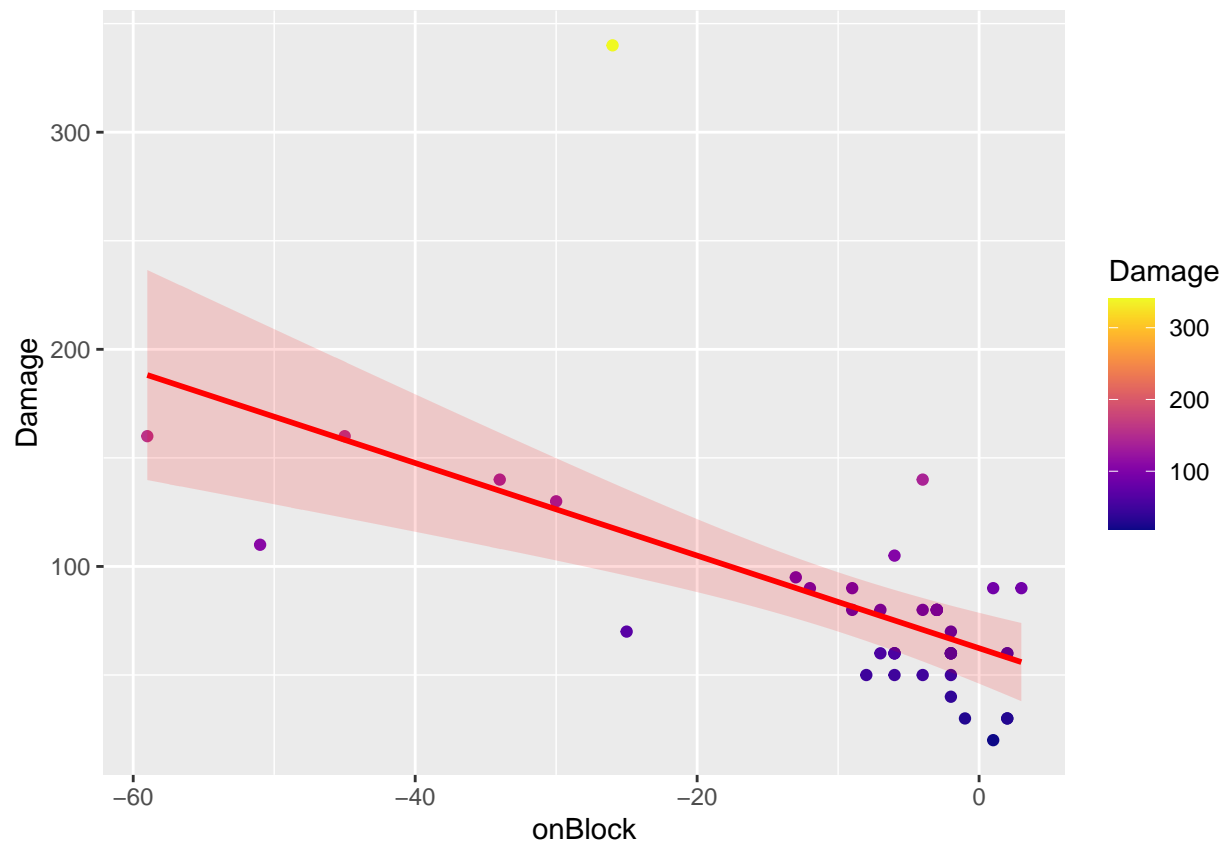
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -0.74005, df = 38, p-value = 0.4638
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4152853 0.1997297
## sample estimates:
##      cor
## -0.1191957
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    108.2672     -0.6963
## `geom_smooth()` using formula = 'y ~ x'
```



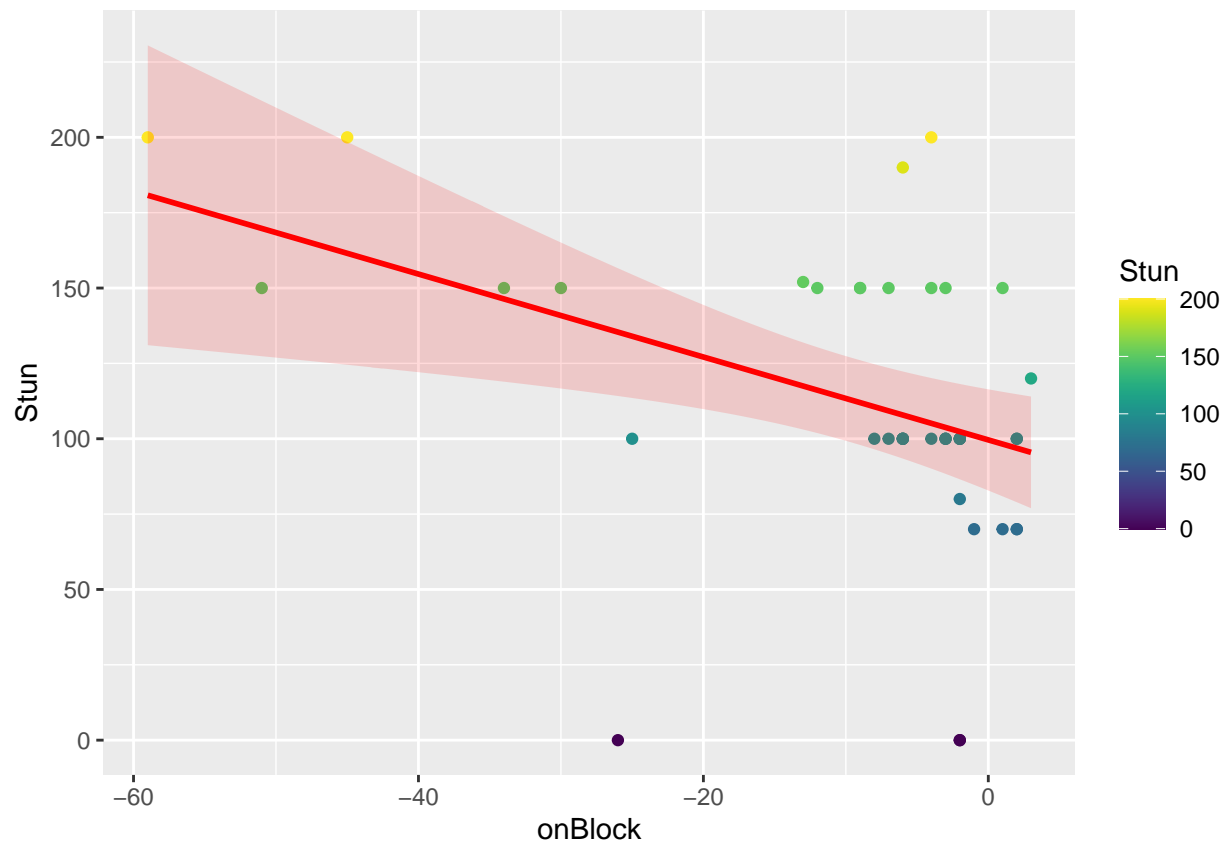
```
scatterplot(
  "data/characters/ken.csv",
  "Ken",
  "#ff0000"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -4.5977, df = 39, p-value = 4.417e-05
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.7616079 -0.3488522
## sample estimates:
## cor
## -0.5928729
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 62.346 -2.132
## `geom_smooth()` using formula = 'y ~ x'
```



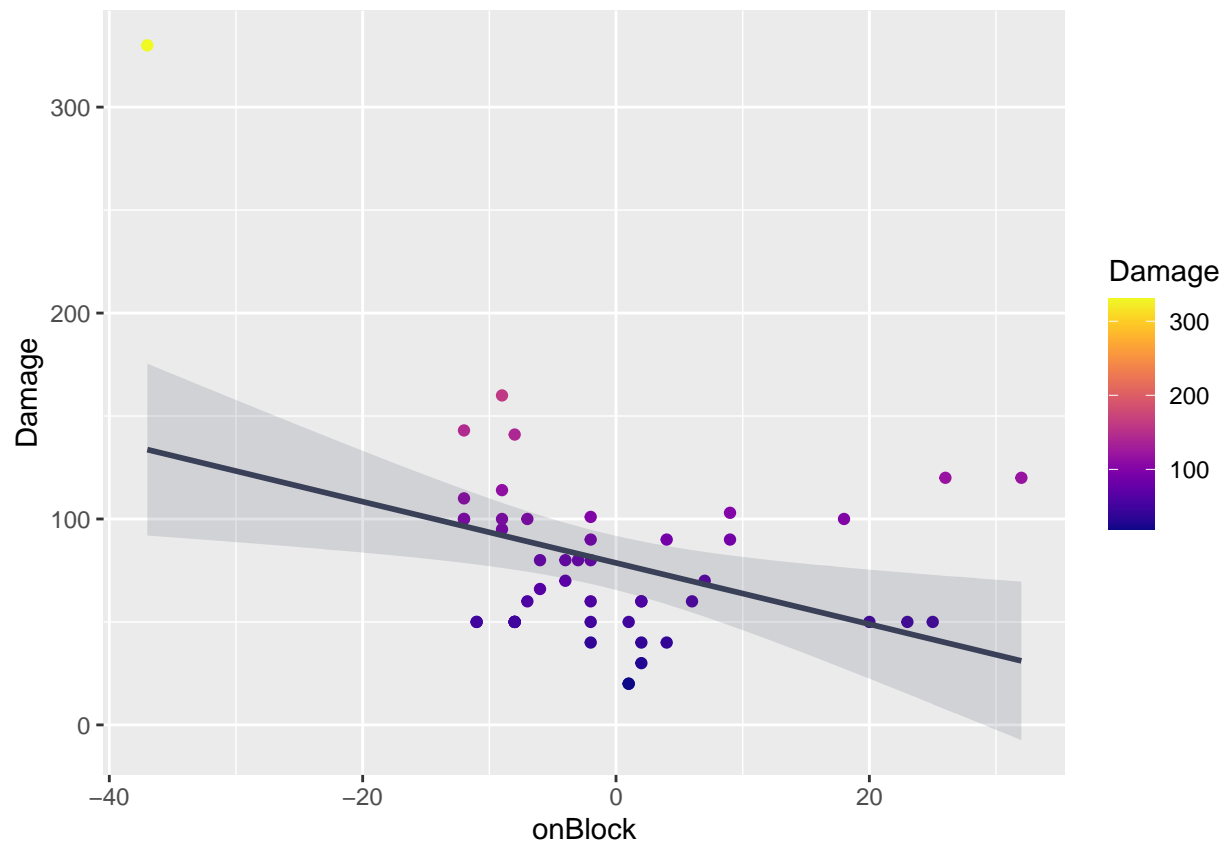


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -2.8845, df = 39, p-value = 0.006353
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.6439071 -0.1282138
## sample estimates:
##      cor
## -0.419324
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      99.612      -1.376
## `geom_smooth()` using formula = 'y ~ x'
```

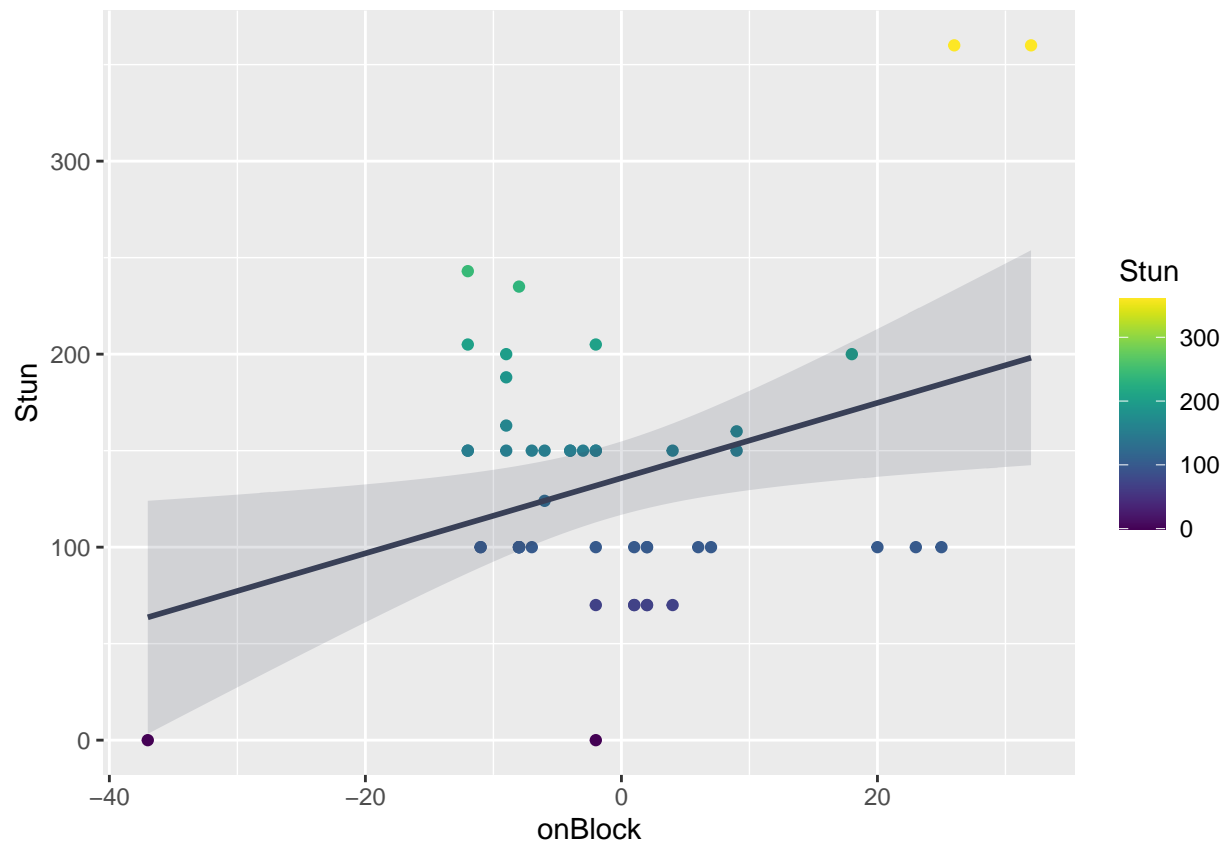


```
scatterplot(
  "data/characters/kolin.csv",
  "Kolin",
  "#394057"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -2.7221, df = 47, p-value = 0.00907
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.58910240 -0.09801277
## sample estimates:
## cor
## -0.3690383
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 78.665 -1.487
## `geom_smooth()` using formula = 'y ~ x'
```

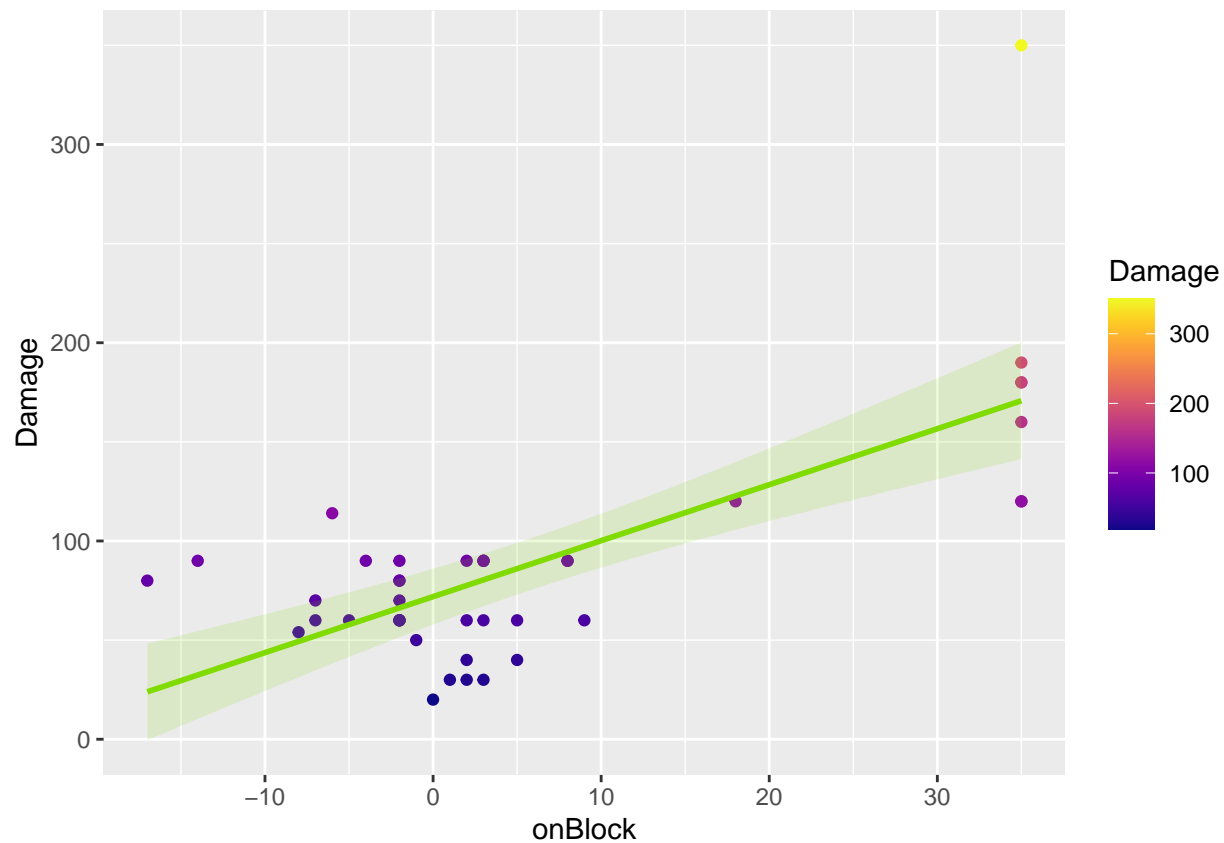


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 2.4669, df = 47, p-value = 0.01733
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.06342482 0.56590093
## sample estimates:
##      cor
## 0.3385828
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    135.769         1.949
## `geom_smooth()` using formula = 'y ~ x'
```

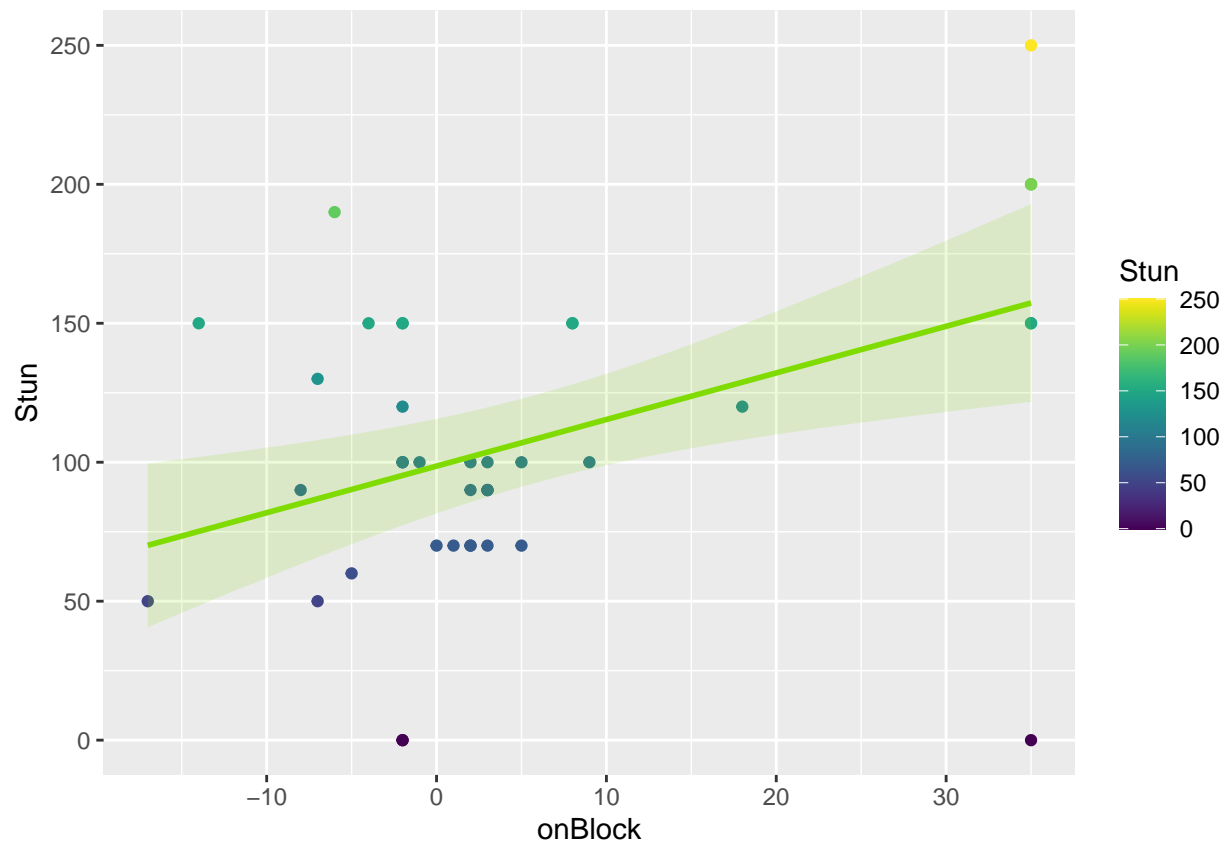


```
scatterplot(
  "data/characters/laura.csv",
  "Laura",
  "#80dc00"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = 6.3223, df = 39, p-value = 1.848e-07
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.5169389 0.8360934
## sample estimates:
##      cor
## 0.7114438
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      71.924       2.823
## `geom_smooth()` using formula = 'y ~ x'
```

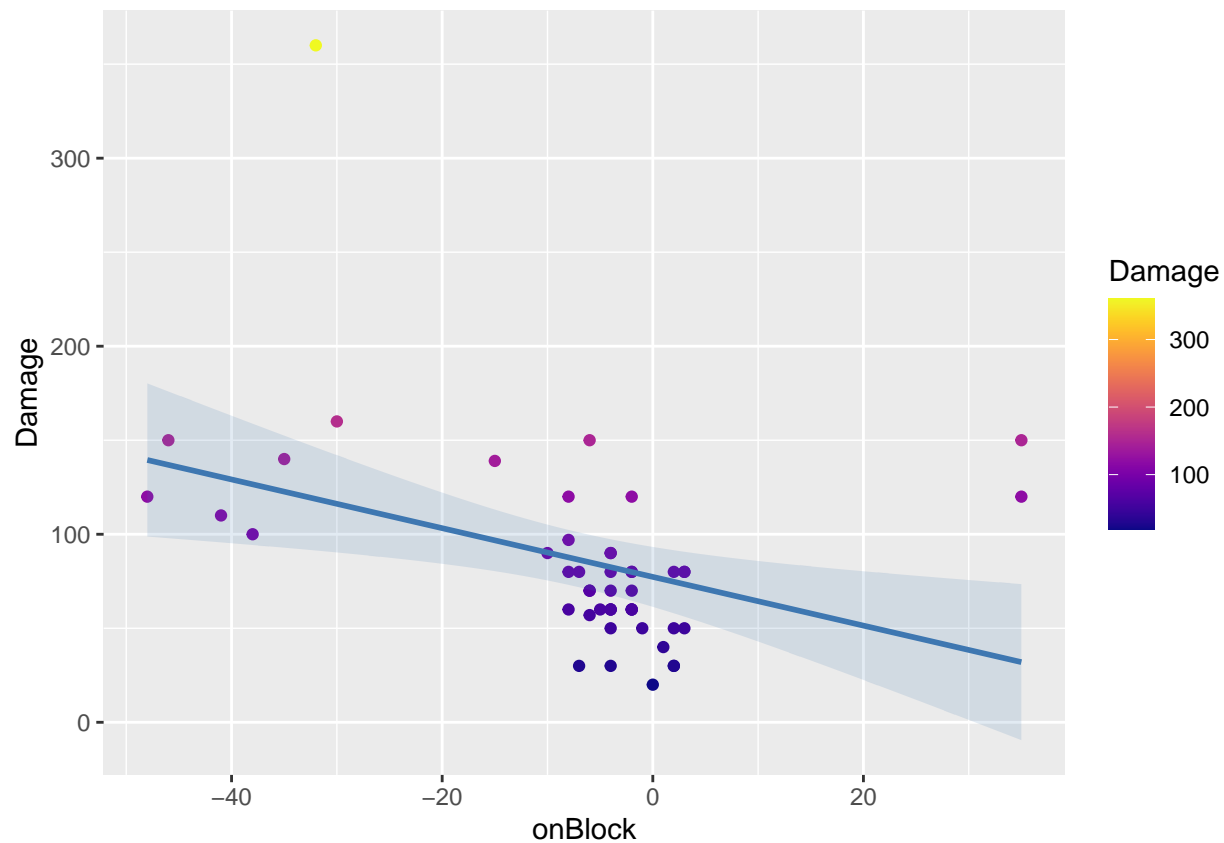


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 3.1074, df = 39, p-value = 0.003513
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.1597268 0.6623577
## sample estimates:
##      cor
## 0.445486
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      98.598       1.677
## `geom_smooth()` using formula = 'y ~ x'
```

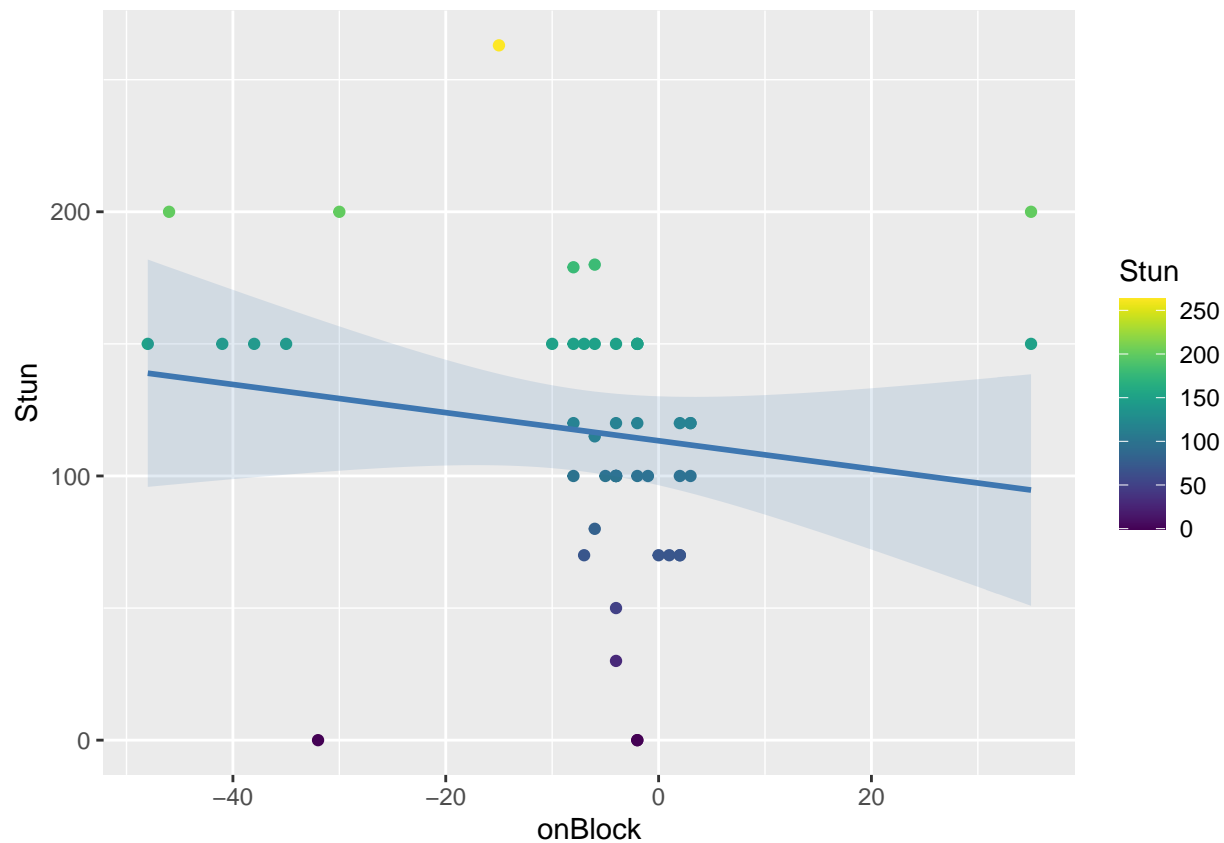


```
scatterplot(
  "data/characters/lucia.csv",
  "Lucia",
  "#3e77b1"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -2.8143, df = 46, p-value = 0.007171
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.6018516 -0.1112347
## sample estimates:
## cor
## -0.3832564
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 77.327 -1.295
## `geom_smooth()` using formula = 'y ~ x'
```



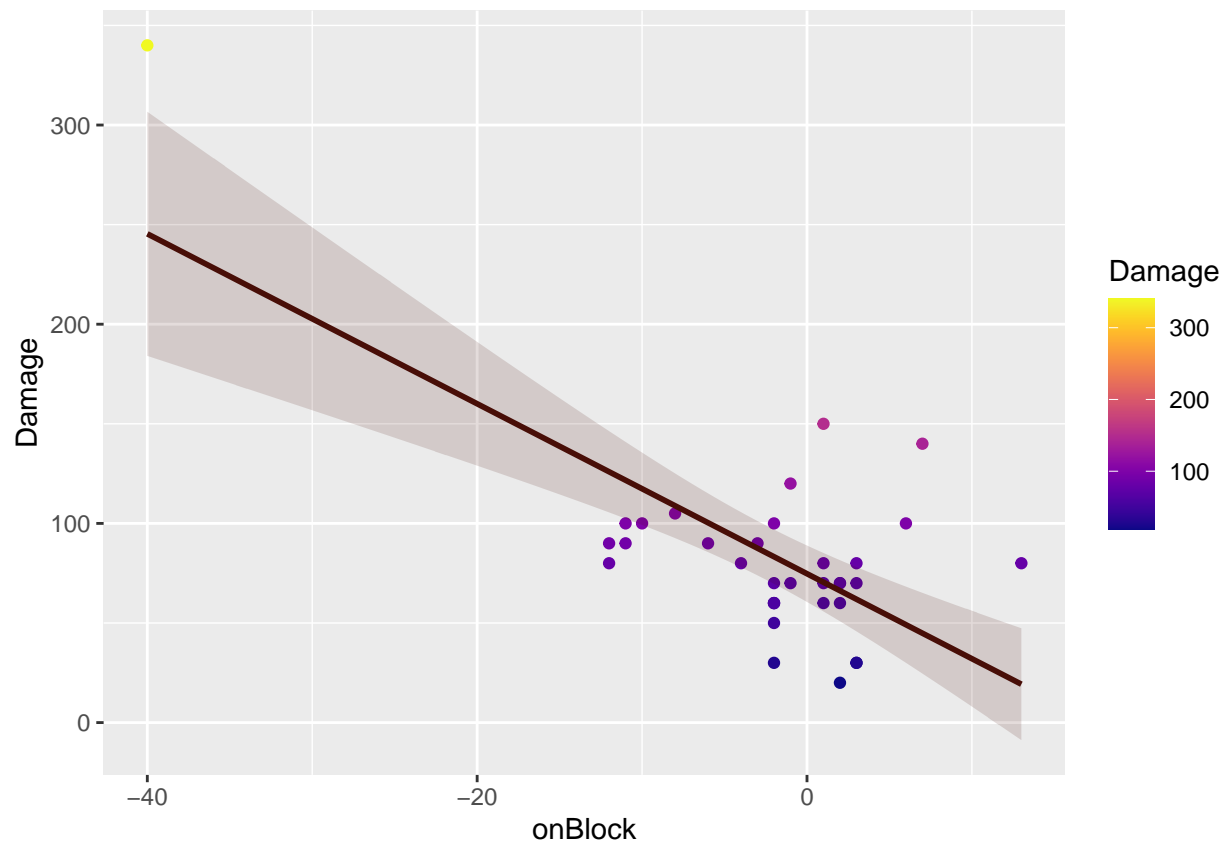
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -1.0959, df = 46, p-value = 0.2788
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4244102 0.1305402
## sample estimates:
##      cor
## -0.1595109
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    113.3249     -0.5327
##
## `geom_smooth()` using formula = 'y ~ x'
```



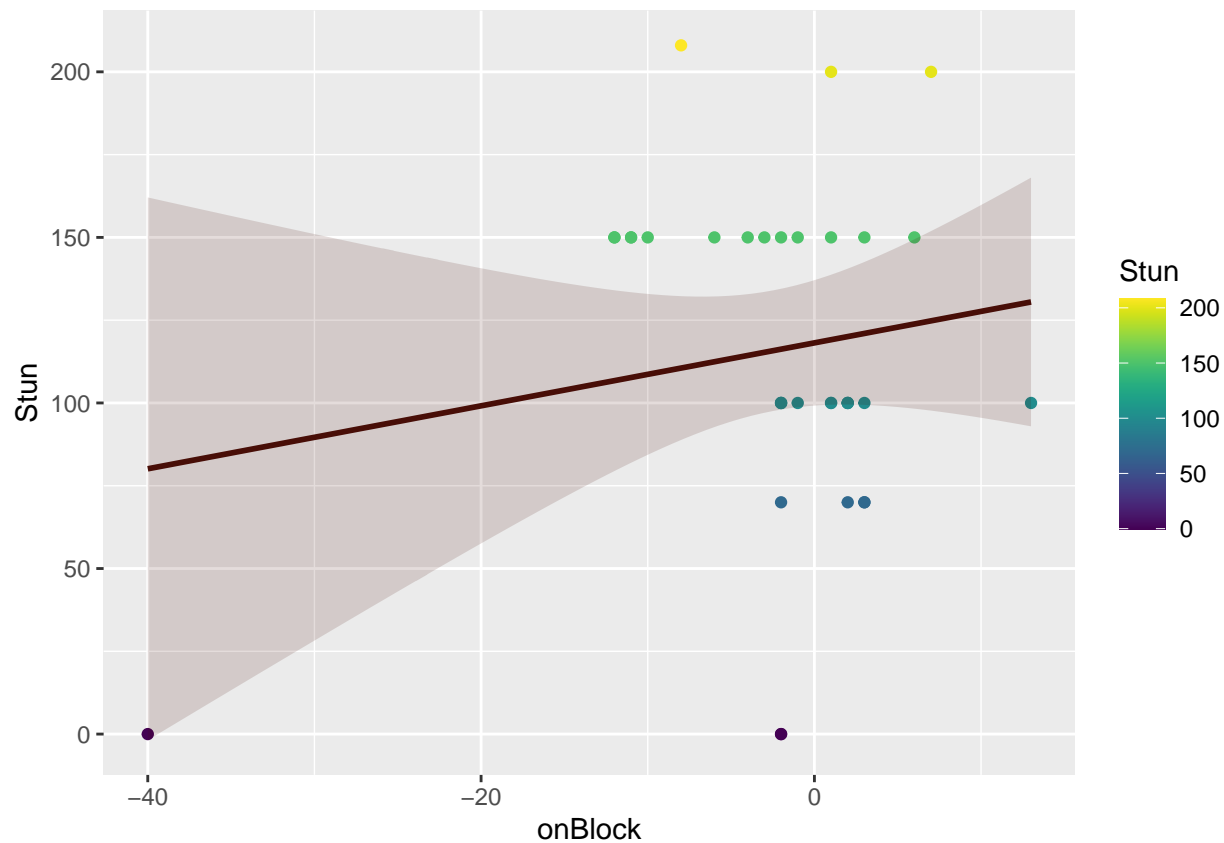
```
scatterplot(
  "data/characters/m_bison.csv",
  "M. Bison",
  "#480e07"
)

##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -5.4615, df = 32, p-value = 5.186e-06
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8363085 -0.4658246
## sample estimates:
## cor
## -0.6945765
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      74.733      -4.266
## `geom_smooth()` using formula = 'y ~ x'
```



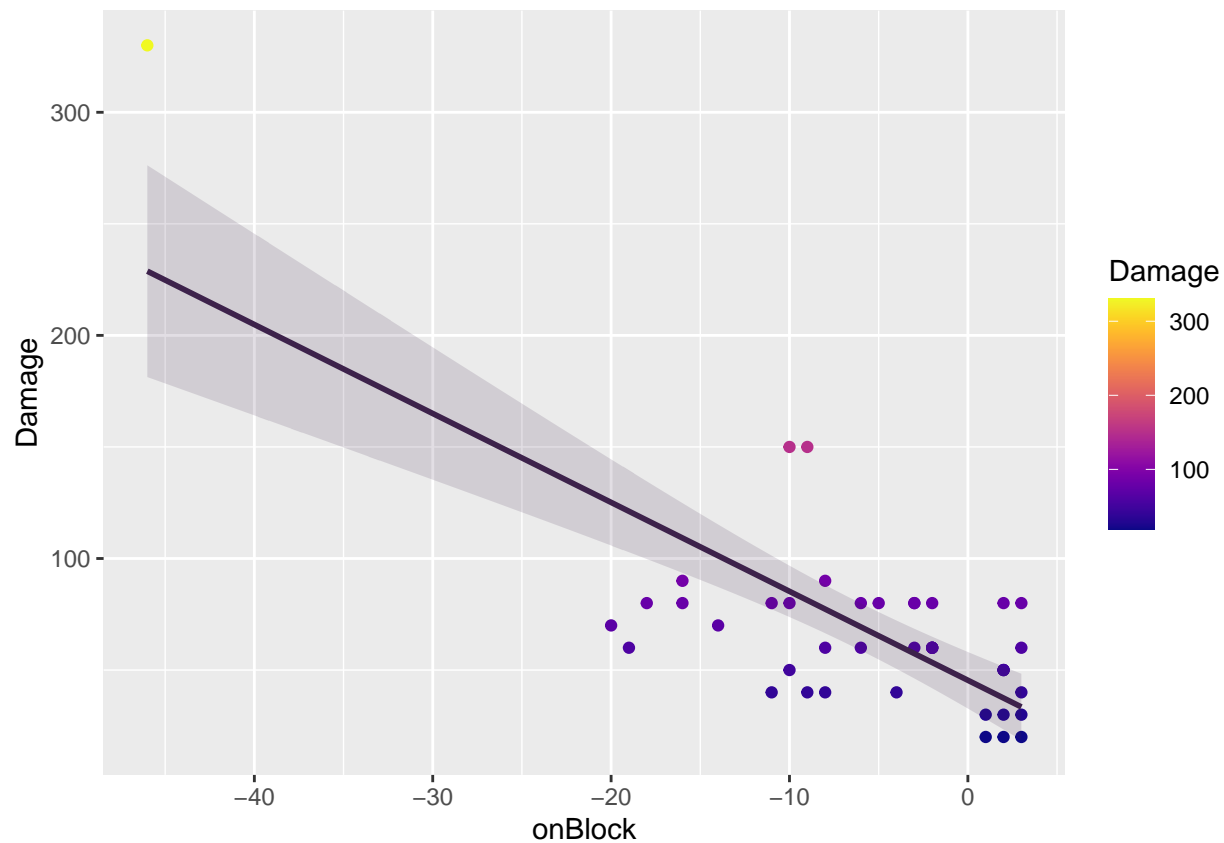


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.91021, df = 32, p-value = 0.3695
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.1894845 0.4716867
## sample estimates:
##      cor
## 0.1588605
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    118.1442      0.9506
## `geom_smooth()` using formula = 'y ~ x'
```

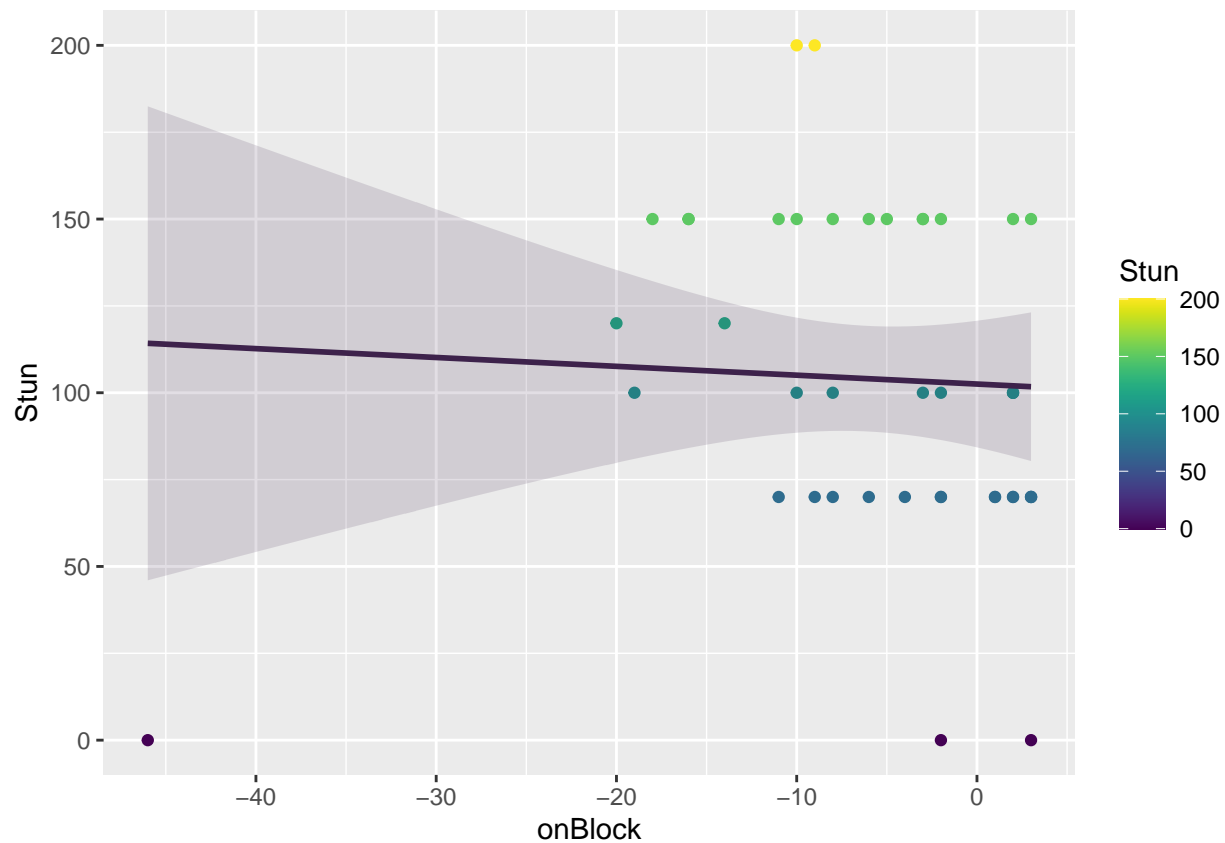


```
scatterplot(
  "data/characters/menat.csv",
  "Menat",
  "#3d224b"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -6.9553, df = 40, p-value = 2.164e-08
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.852167 -0.562391
## sample estimates:
## cor
## -0.7398595
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 45.417 -3.986
## `geom_smooth()` using formula = 'y ~ x'
```

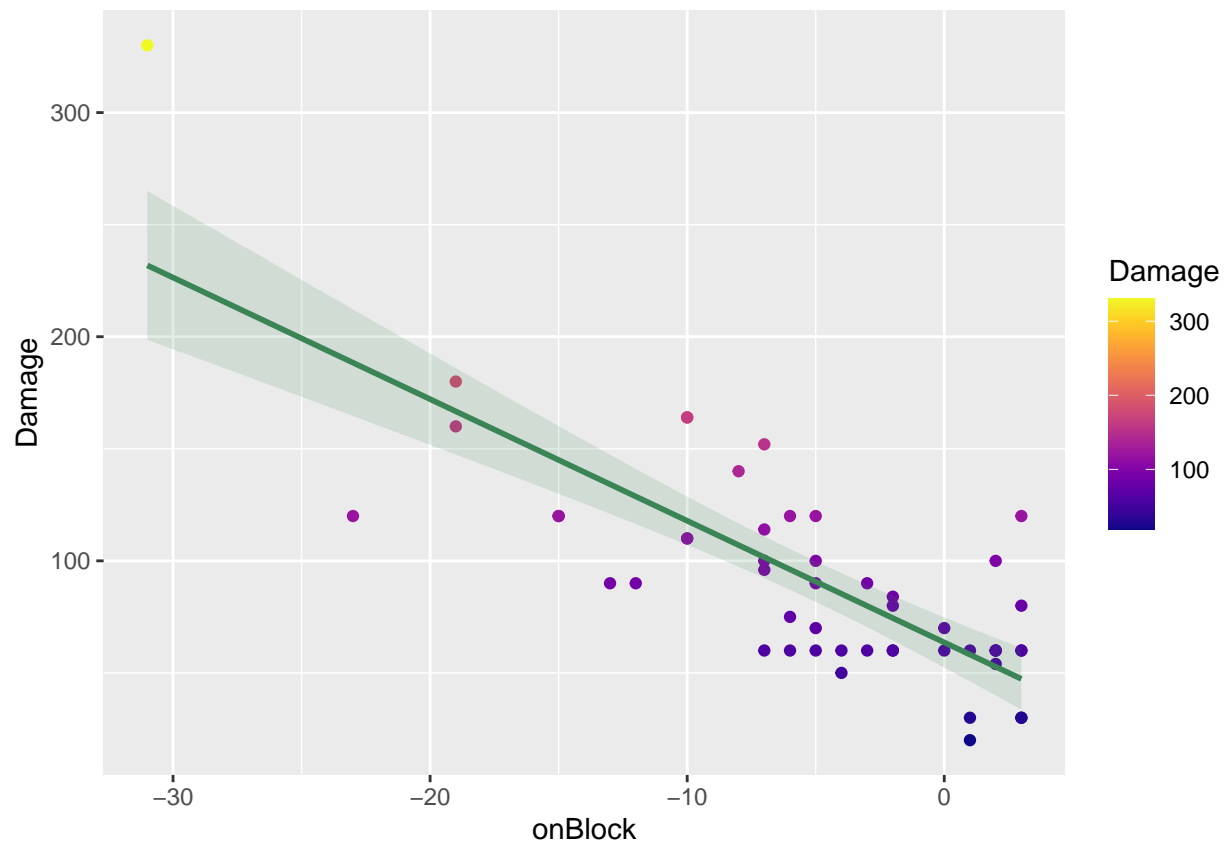


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -0.30938, df = 40, p-value = 0.7586
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.3476282 0.2589172
## sample estimates:
##      cor
## -0.04885902
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    102.5065      -0.2548
##
## `geom_smooth()` using formula = 'y ~ x'
```

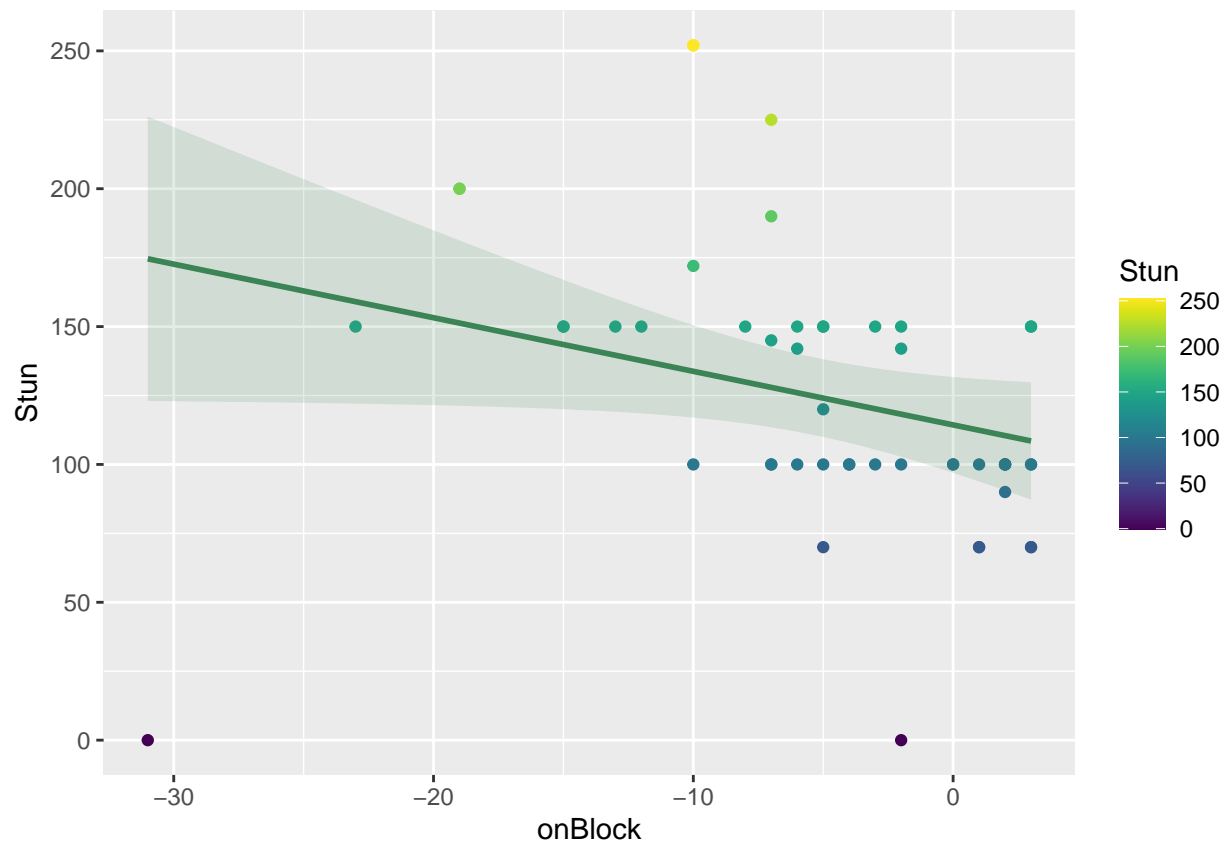


```
scatterplot(
  "data/characters/nash.csv",
  "Nash",
  "#3a8455"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -8.7962, df = 48, p-value = 1.417e-11
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8730302 -0.6491925
## sample estimates:
##      cor
## -0.7855842
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      63.608      -5.426
## `geom_smooth()` using formula = 'y ~ x'
```

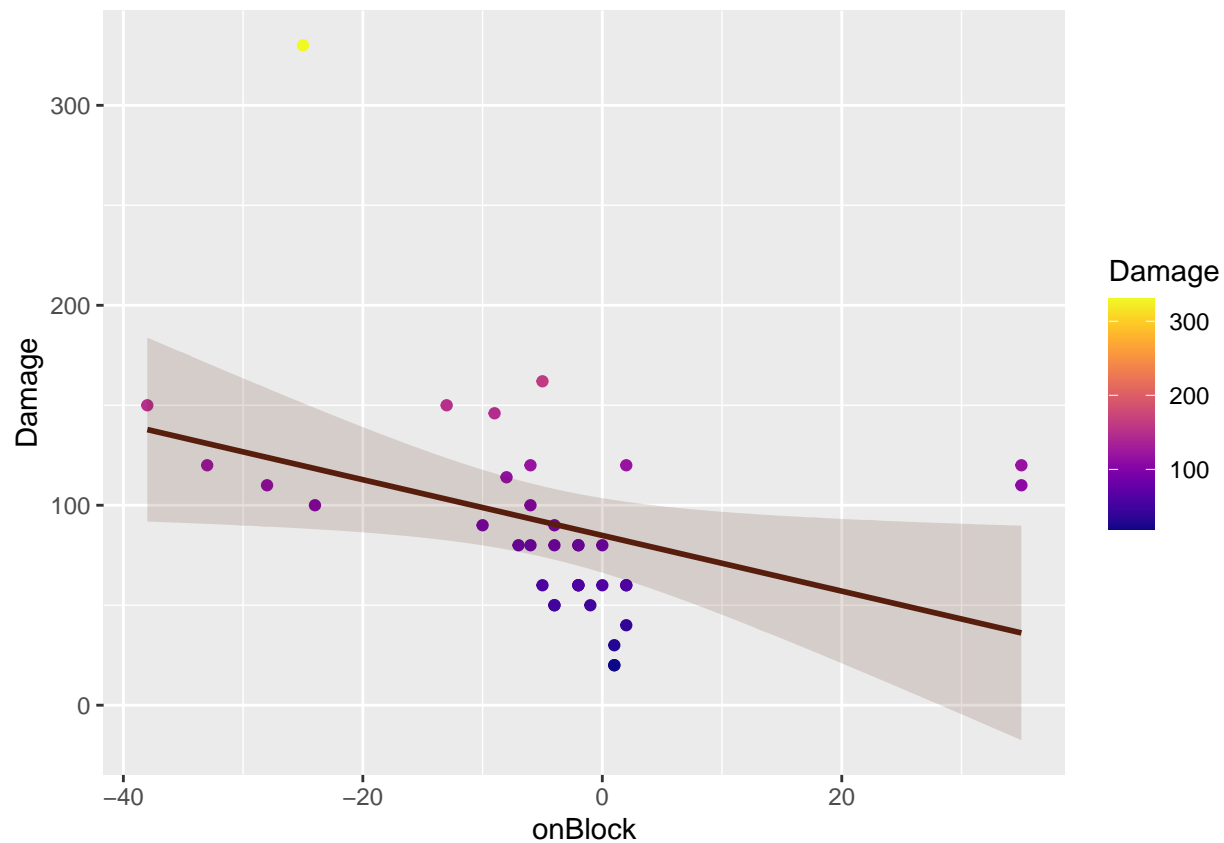


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -2.0253, df = 48, p-value = 0.04841
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.518445968 -0.002431866
## sample estimates:
##      cor
## -0.2805897
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      114.338       -1.944
## `geom_smooth()` using formula = 'y ~ x'
```

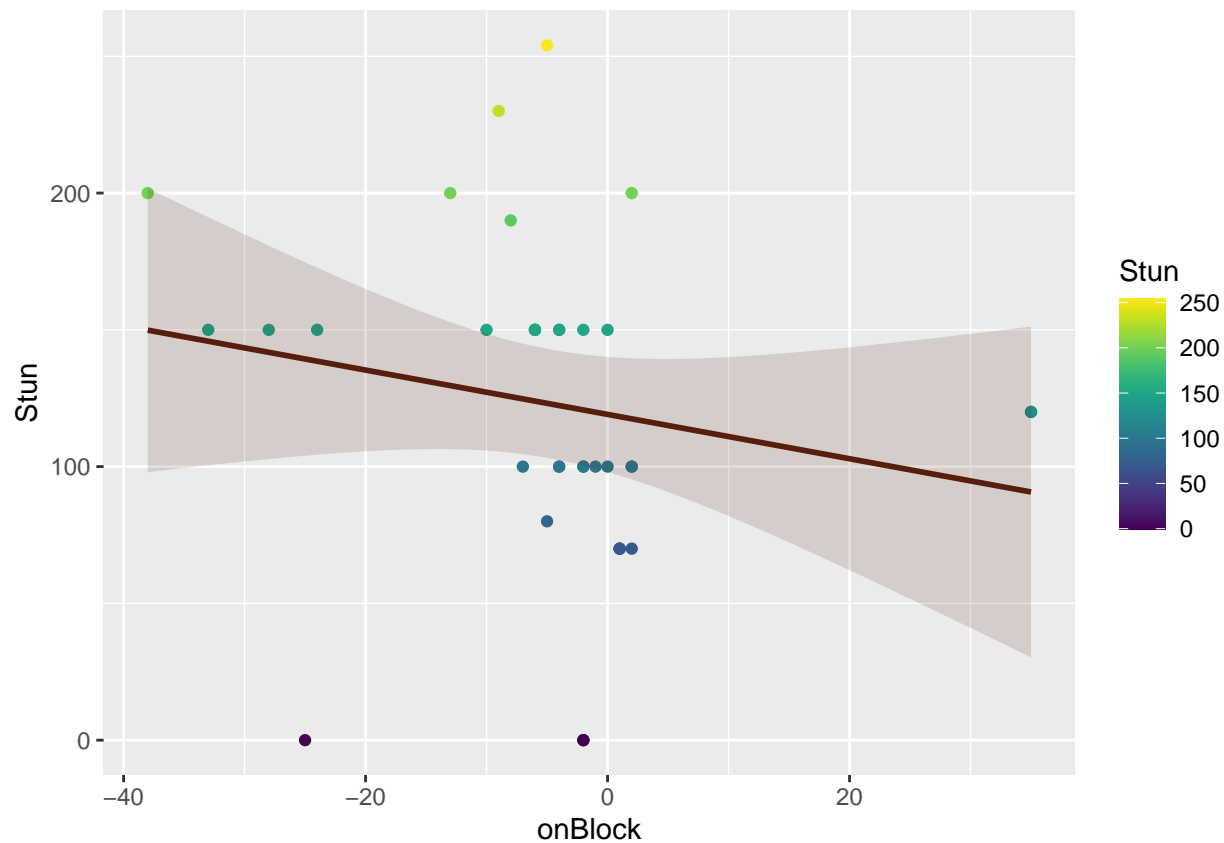


```
scatterplot(
  "data/characters/necalli.csv",
  "Necalli",
  "#581e0d"
)

##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -2.2194, df = 34, p-value = 0.03324
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.61265749 -0.03078308
## sample estimates:
##      cor
## -0.3557213
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      84.905      -1.393
## `geom_smooth()` using formula = 'y ~ x'
```



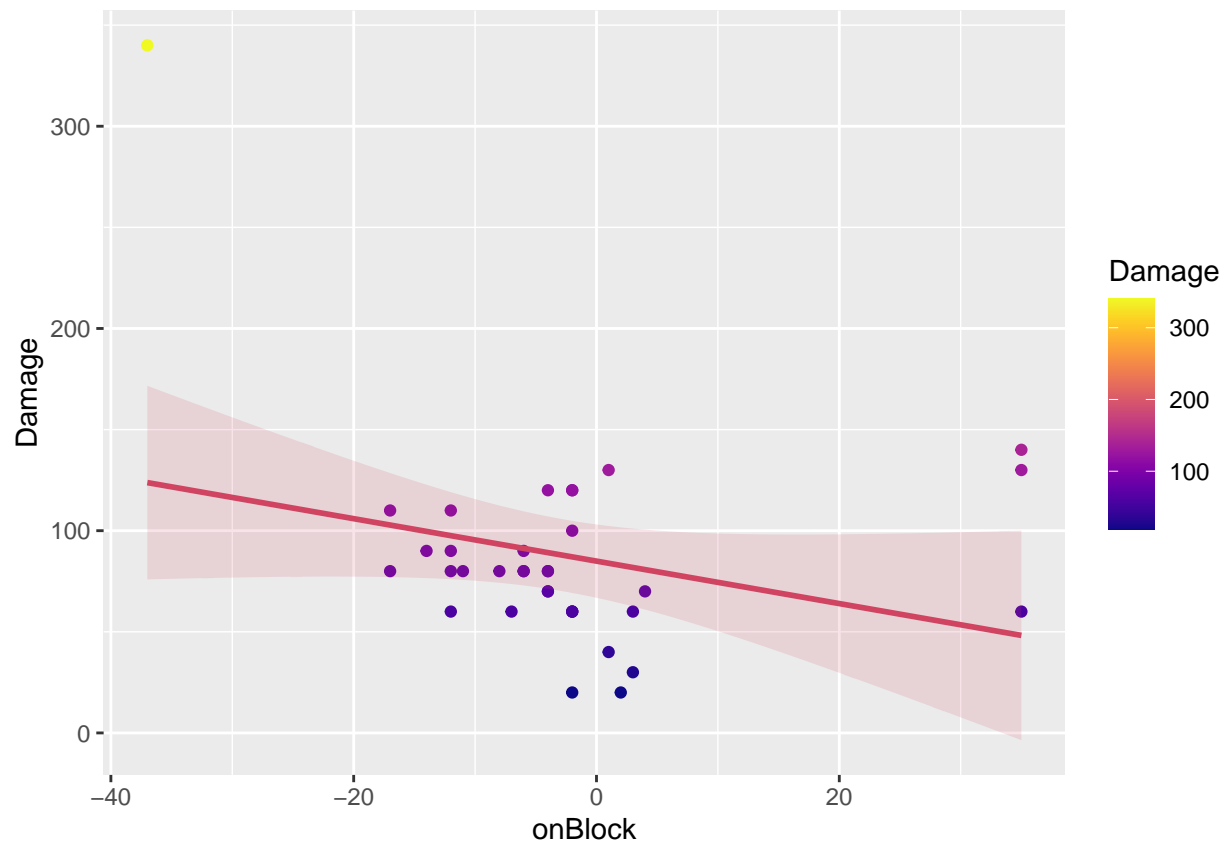
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -1.1445, df = 34, p-value = 0.2604
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4901311 0.1451075
## sample estimates:
##      cor
## -0.1926106
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    119.0843      -0.8104
##
## `geom_smooth()` using formula = 'y ~ x'
```



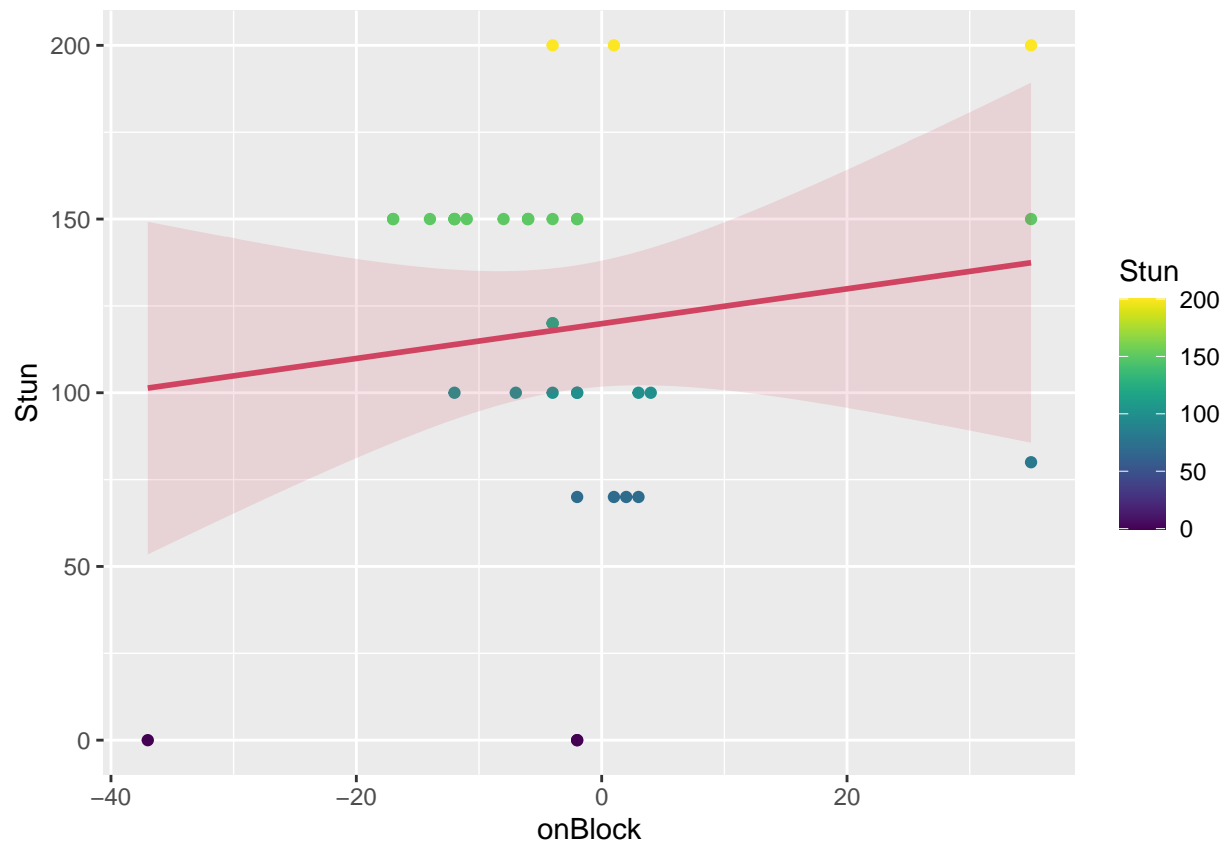
```
scatterplot(
  "data/characters/poison.csv",
  "Poison",
  "#d14461"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -1.6515, df = 33, p-value = 0.1081
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.55815065 0.06272648
## sample estimates:
## cor
## -0.2762956
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 84.956 -1.049
## `geom_smooth()` using formula = 'y ~ x'
```



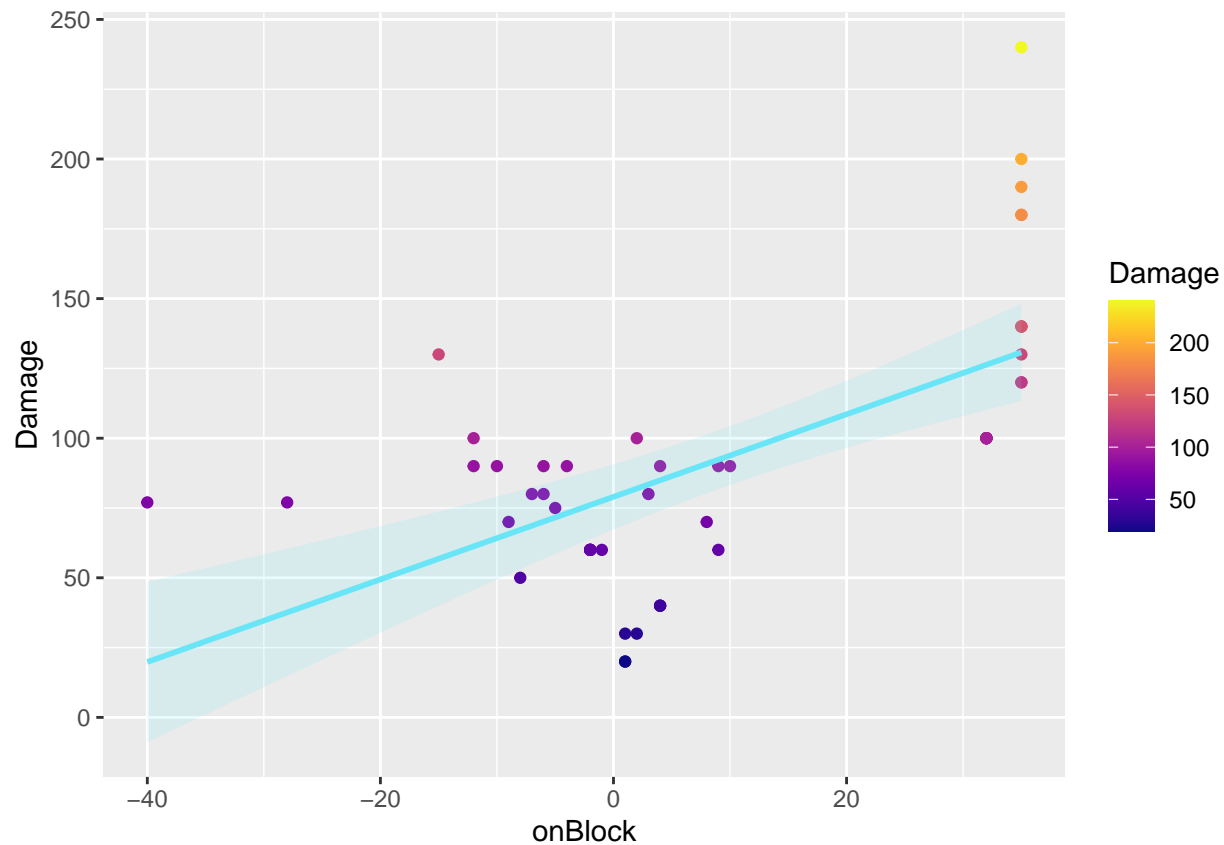


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.78839, df = 33, p-value = 0.4361
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2066435 0.4488741
## sample estimates:
##      cor
## 0.1359661
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    119.8887      0.5011
## `geom_smooth()` using formula = 'y ~ x'
```

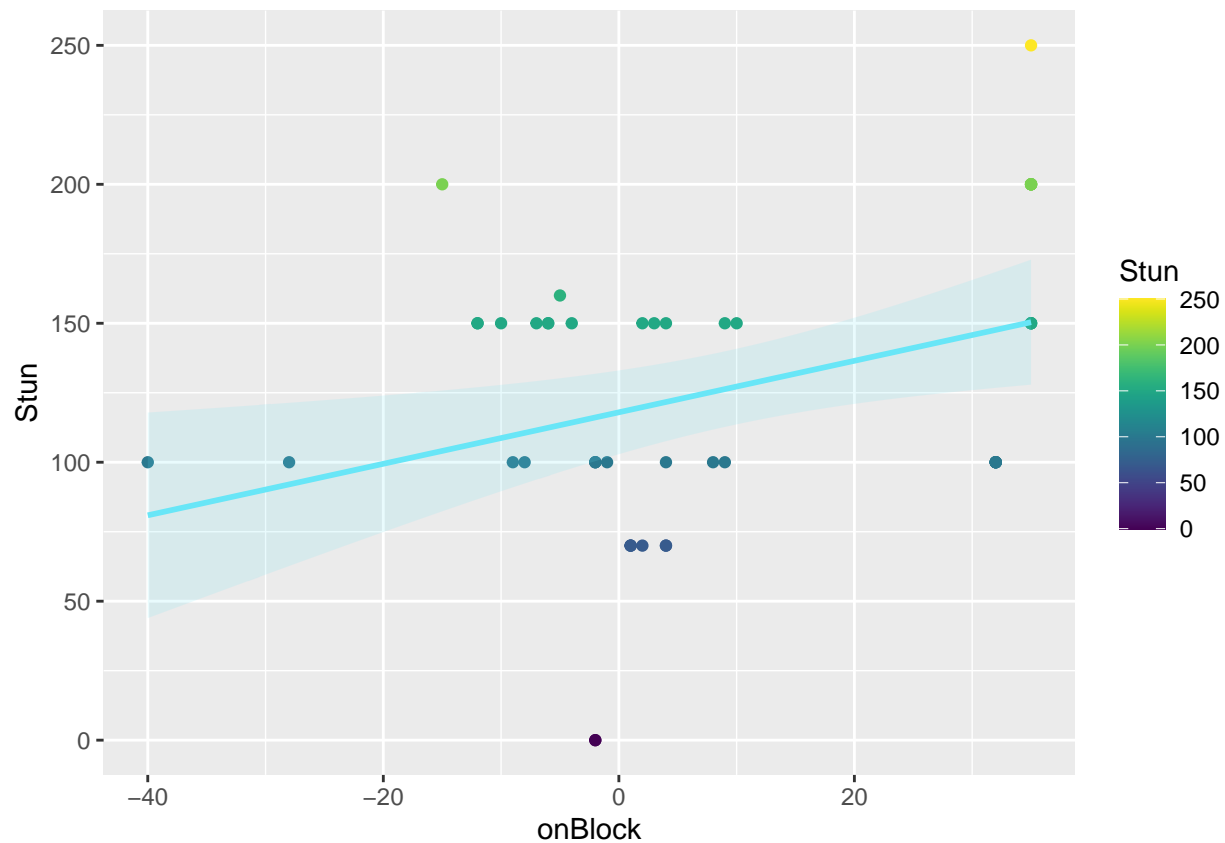


```
scatterplot(
  "data/characters/r_mika.csv",
  "R. Mika",
  "#68e6f7"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = 5.4903, df = 48, p-value = 1.49e-06
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.4143748 0.7668607
## sample estimates:
##      cor
## 0.6210863
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      78.997         1.479
## `geom_smooth()` using formula = 'y ~ x'
```

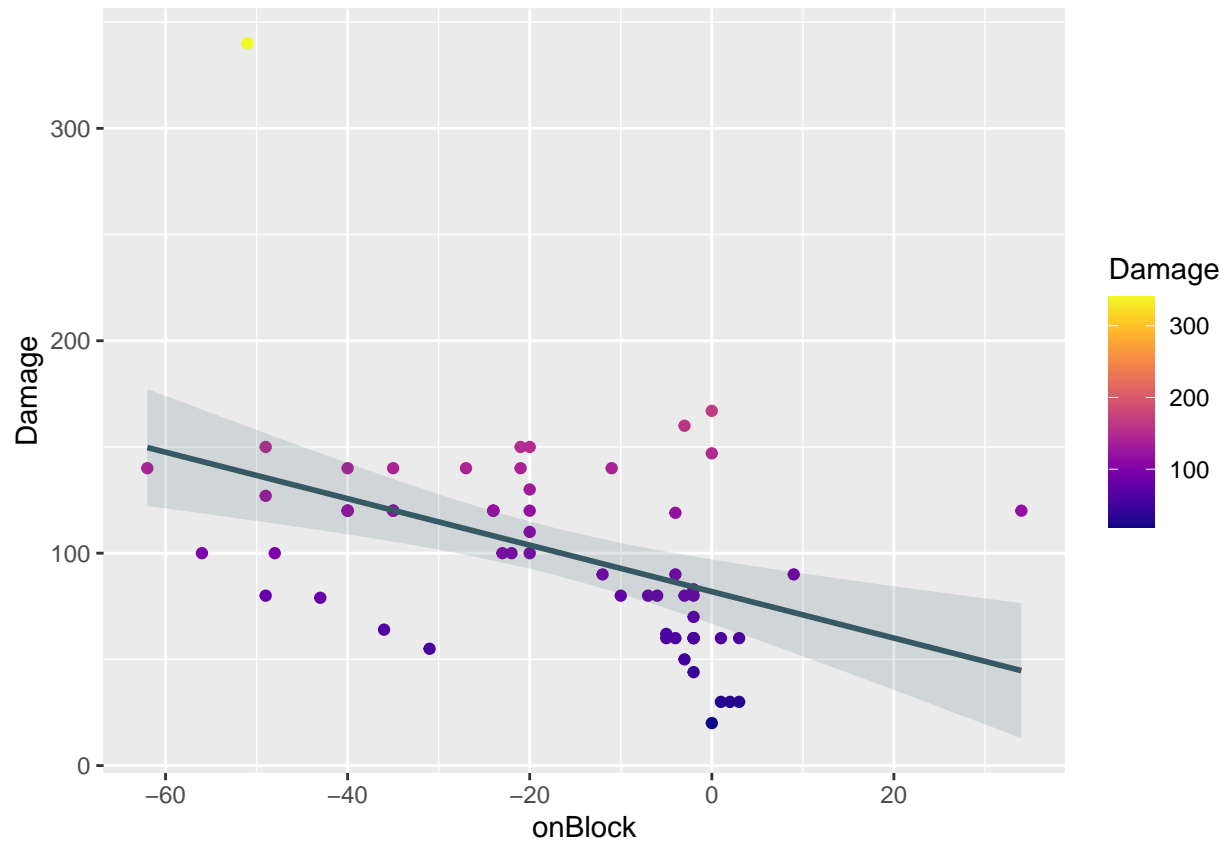


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 2.6711, df = 48, p-value = 0.01029
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.09043279 0.57999872
## sample estimates:
##      cor
## 0.3597256
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    117.9646      0.9265
## `geom_smooth()` using formula = 'y ~ x'
```

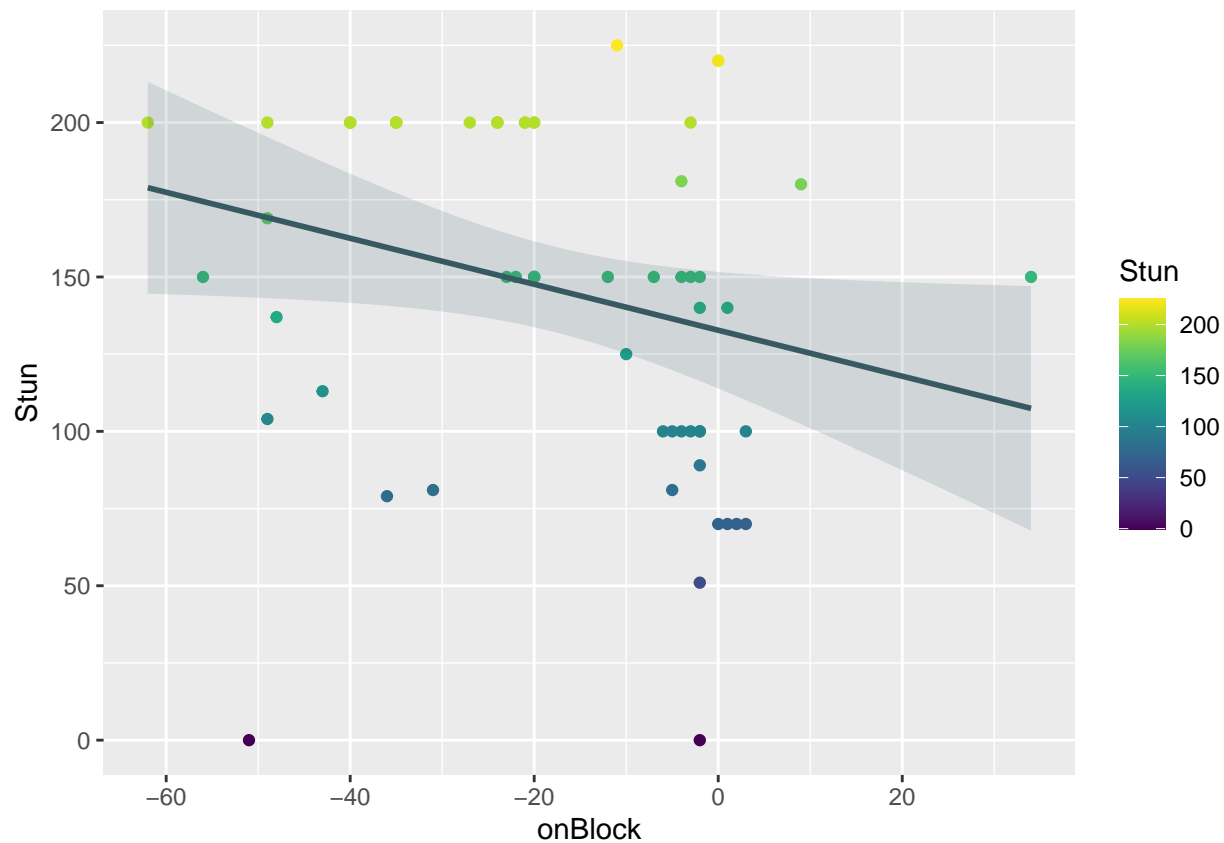


```
scatterplot(
  "data/characters/rashid.csv",
  "Rashid",
  "#375963"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -3.8223, df = 59, p-value = 0.0003207
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.6269911 -0.2181672
## sample estimates:
## cor
## -0.445512
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 81.898 -1.094
## `geom_smooth()` using formula = 'y ~ x'
```

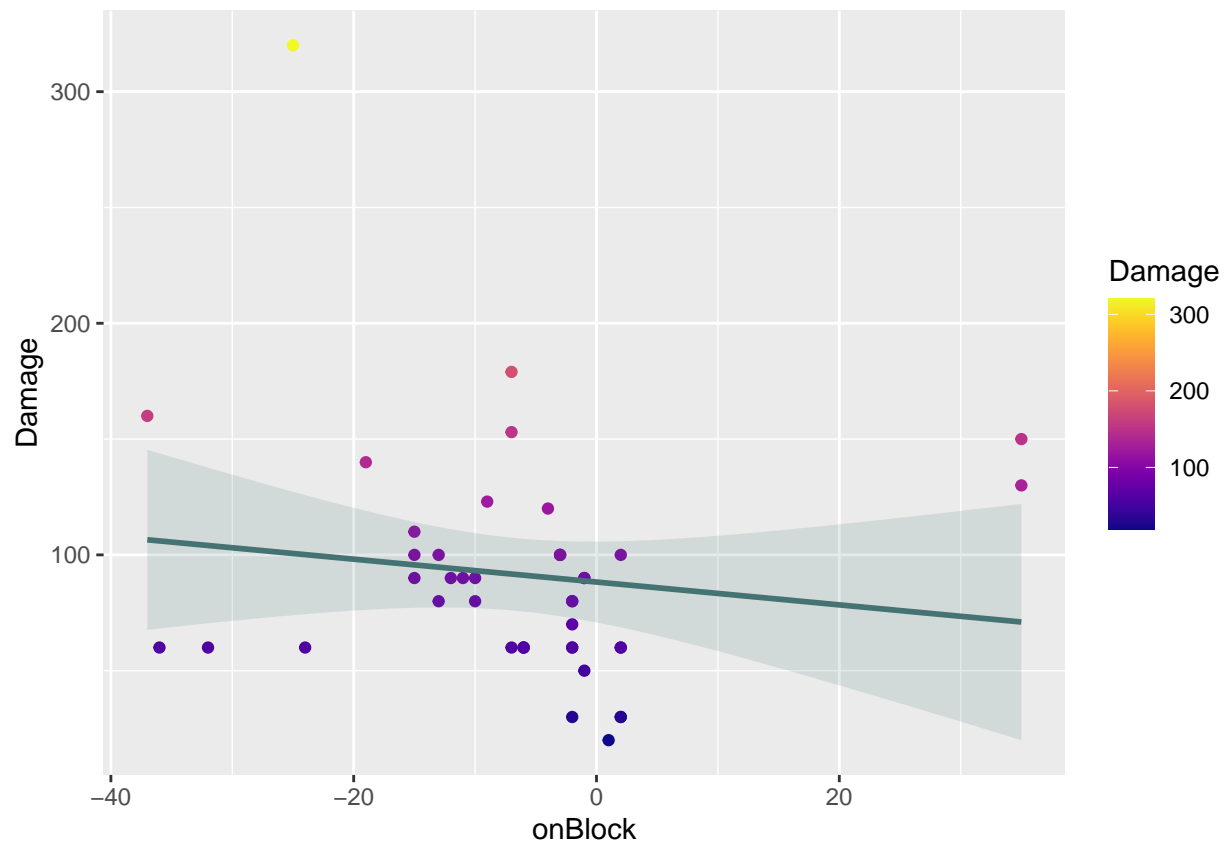


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -2.0873, df = 59, p-value = 0.04119
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.48220929 -0.01114673
## sample estimates:
##      cor
## -0.2622314
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    132.7483     -0.7444
##
## `geom_smooth()` using formula = 'y ~ x'
```

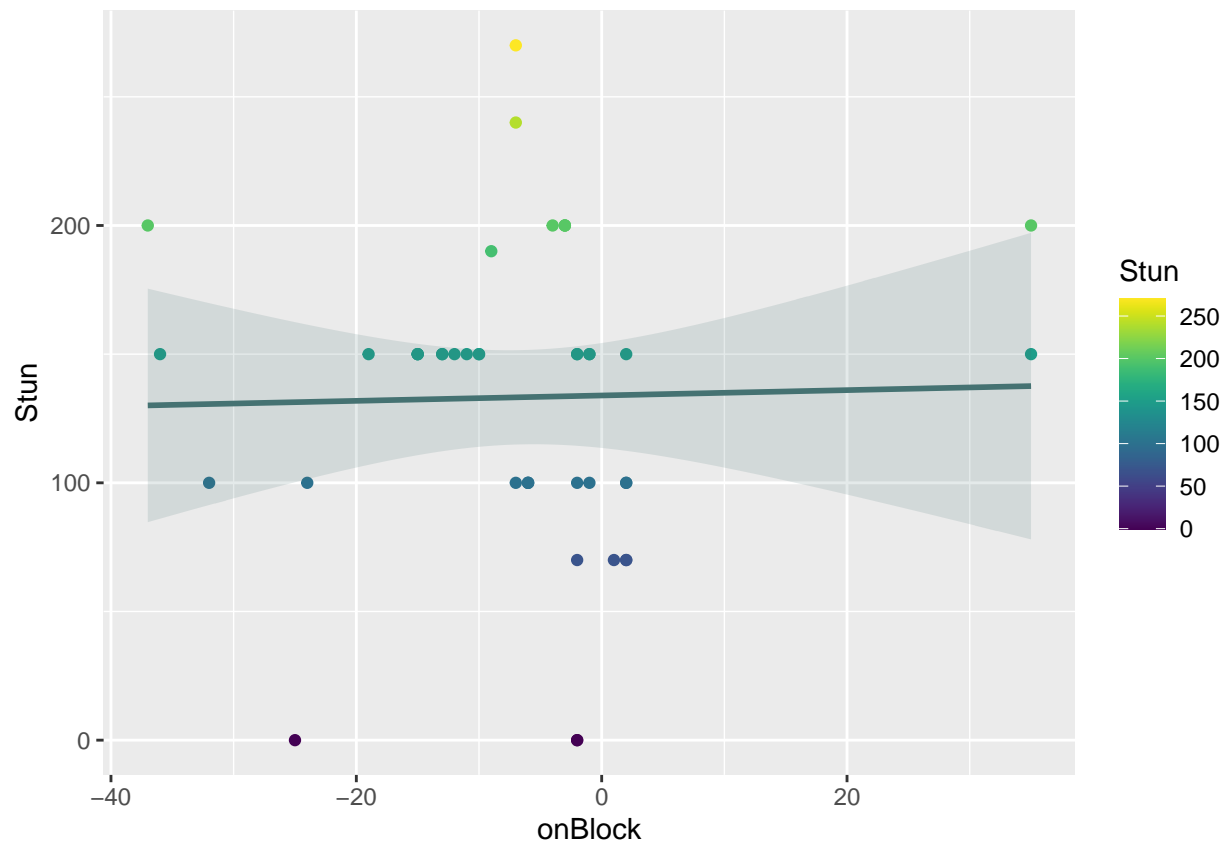


```
scatterplot(
  "data/characters/ryu.csv",
  "Ryu",
  "#457272"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -0.8525, df = 41, p-value = 0.3989
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4158351 0.1753191
## sample estimates:
## cor
## -0.131974
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 88.2779 -0.4931
## `geom_smooth()` using formula = 'y ~ x'
```



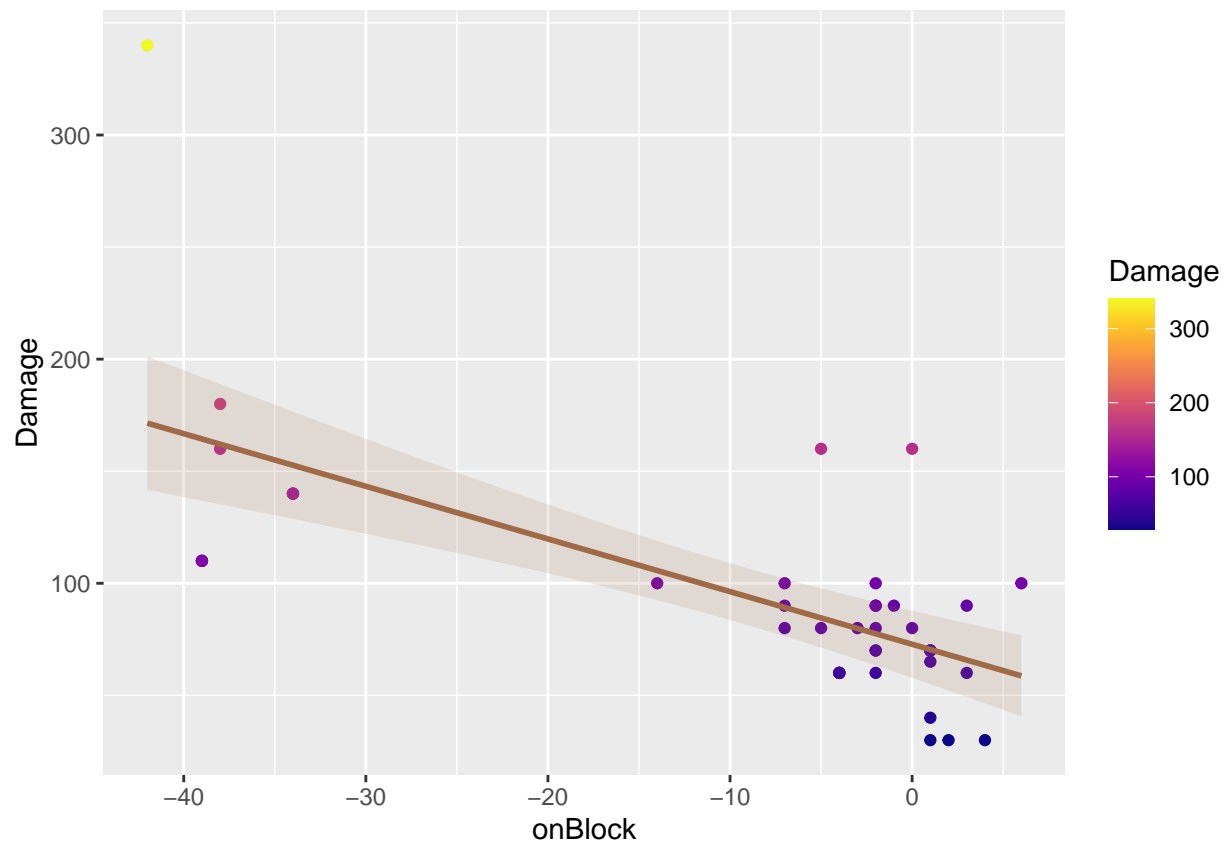
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.15427, df = 41, p-value = 0.8782
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2782716 0.3220991
## sample estimates:
##      cor
## 0.02408522
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    133.9391      0.1042
## `geom_smooth()` using formula = 'y ~ x'
```



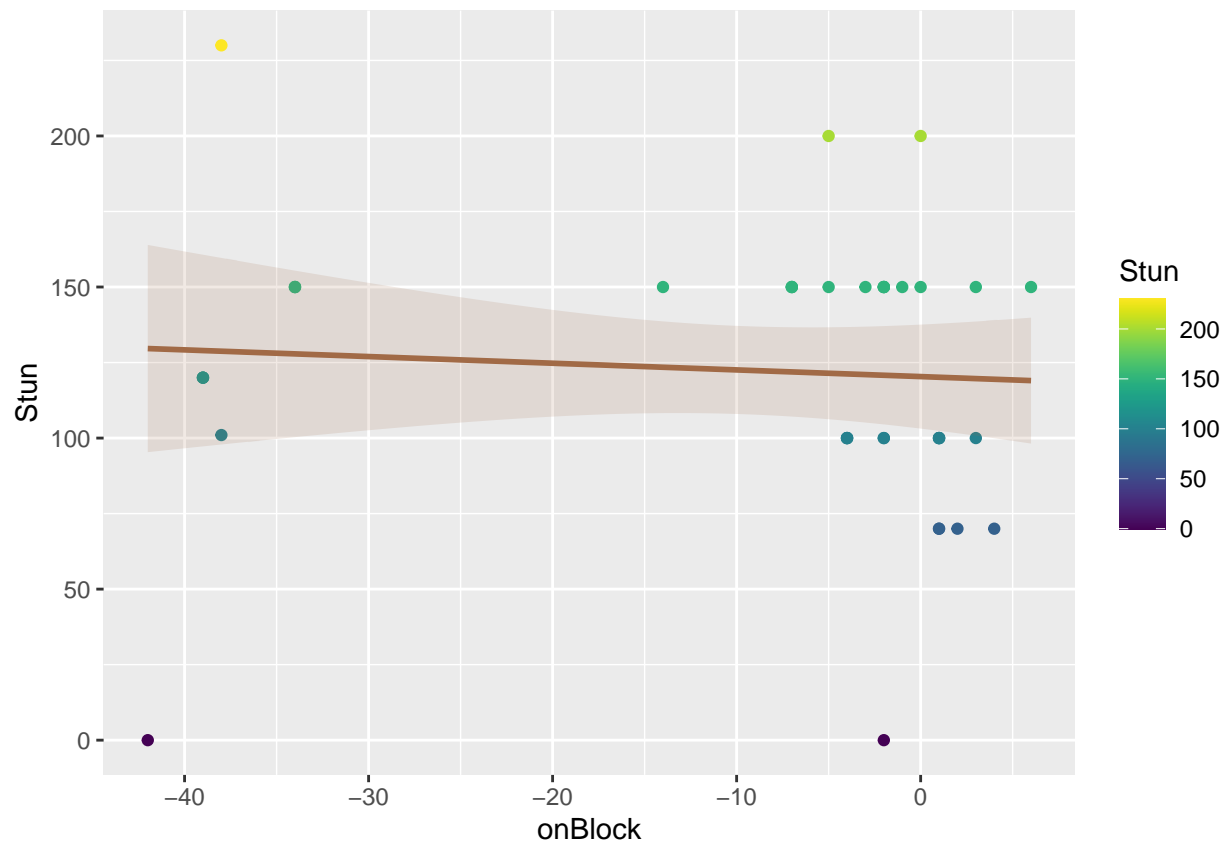
```
scatterplot(
  "data/characters/sagat.csv",
  "Sagat",
  "#a16a46"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -5.7167, df = 39, p-value = 1.281e-06
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8138157 -0.4639469
## sample estimates:
## cor
## -0.6752207
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 72.785 -2.349
## `geom_smooth()` using formula = 'y ~ x'
```



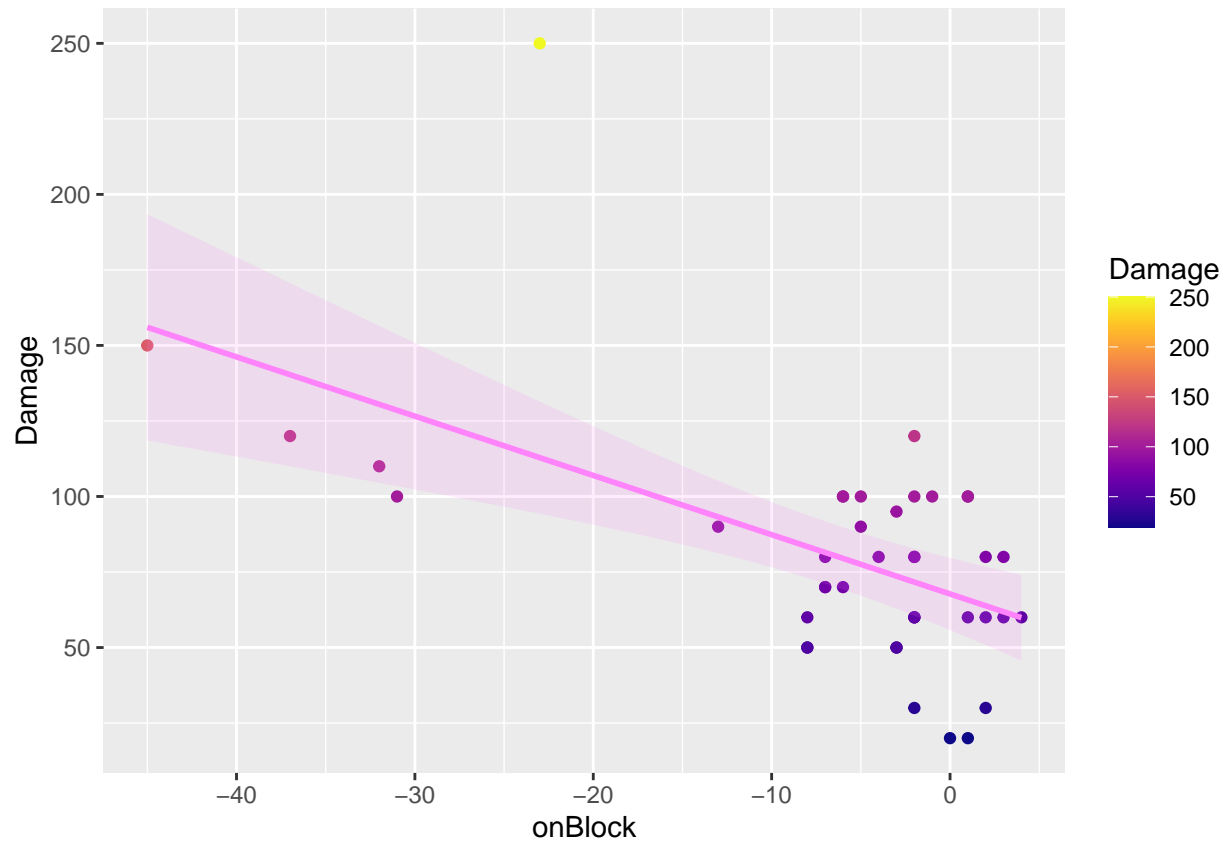


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -0.46718, df = 39, p-value = 0.643
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.3736739 0.2385253
## sample estimates:
##      cor
## -0.07459948
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    120.3498      -0.2211
##
## `geom_smooth()` using formula = 'y ~ x'
```

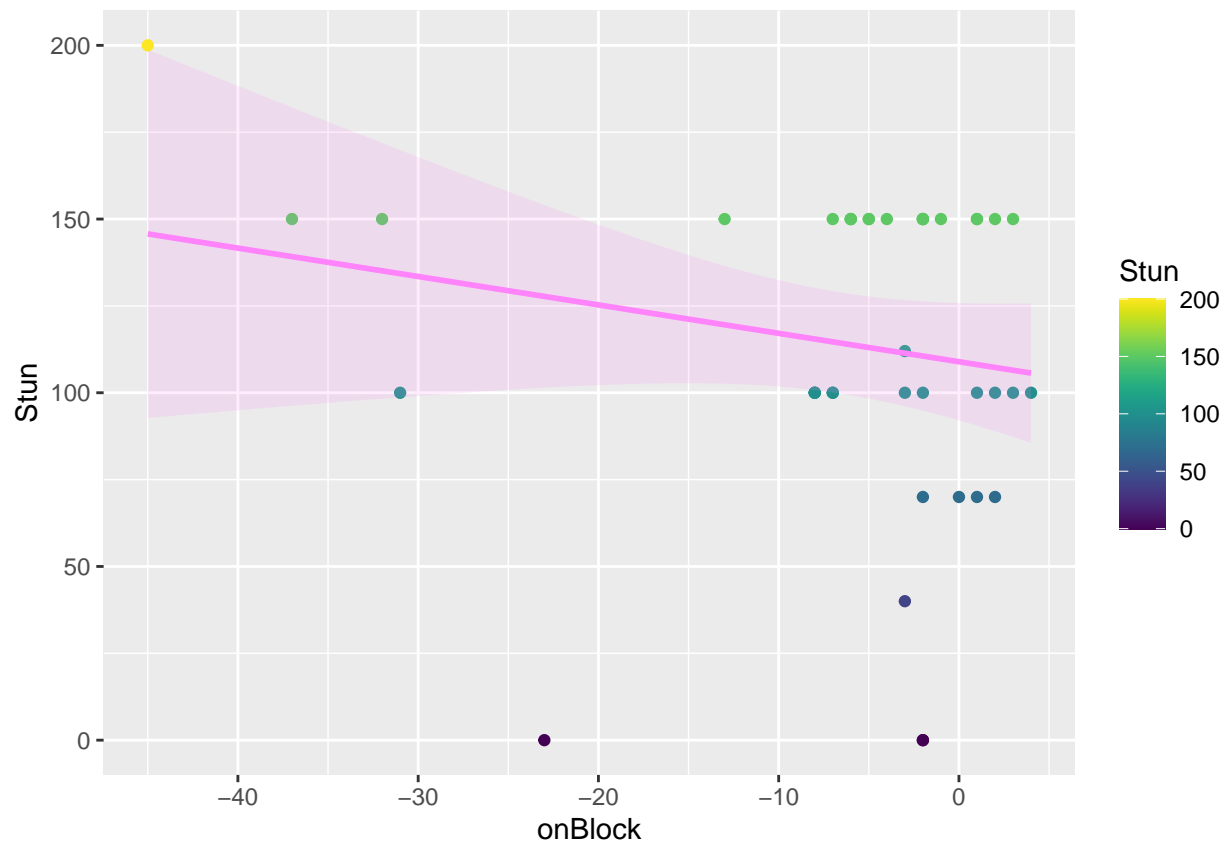


```
scatterplot(
  "data/characters/sakura.csv",
  "Sakura",
  "#ff83fa"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -4.2482, df = 39, p-value = 0.0001295
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.7417532 -0.3081224
## sample estimates:
## cor
## -0.5624554
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      67.735      -1.962
## `geom_smooth()` using formula = 'y ~ x'
```

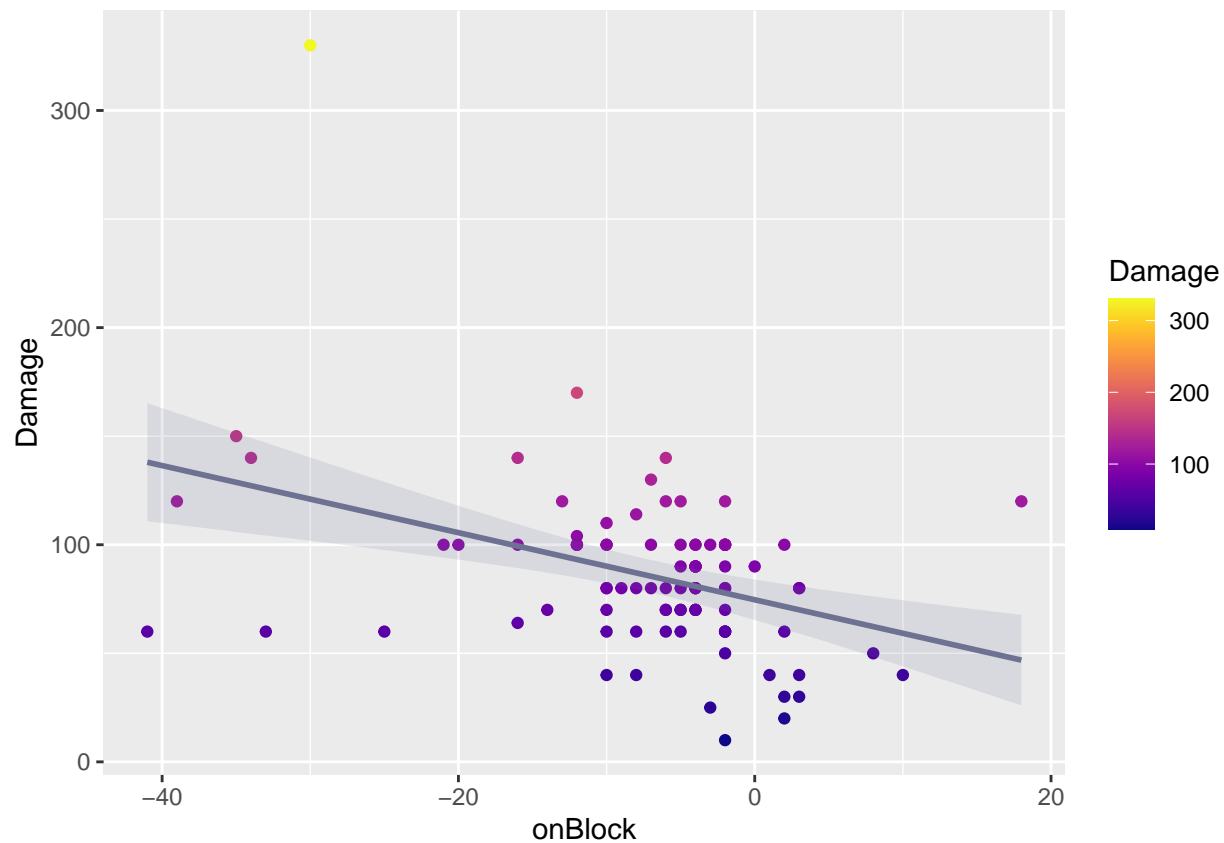


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -1.2515, df = 39, p-value = 0.2182
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4754089 0.1183041
## sample estimates:
##      cor
## -0.1964982
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    108.9301      -0.8177
##
## `geom_smooth()` using formula = 'y ~ x'
```

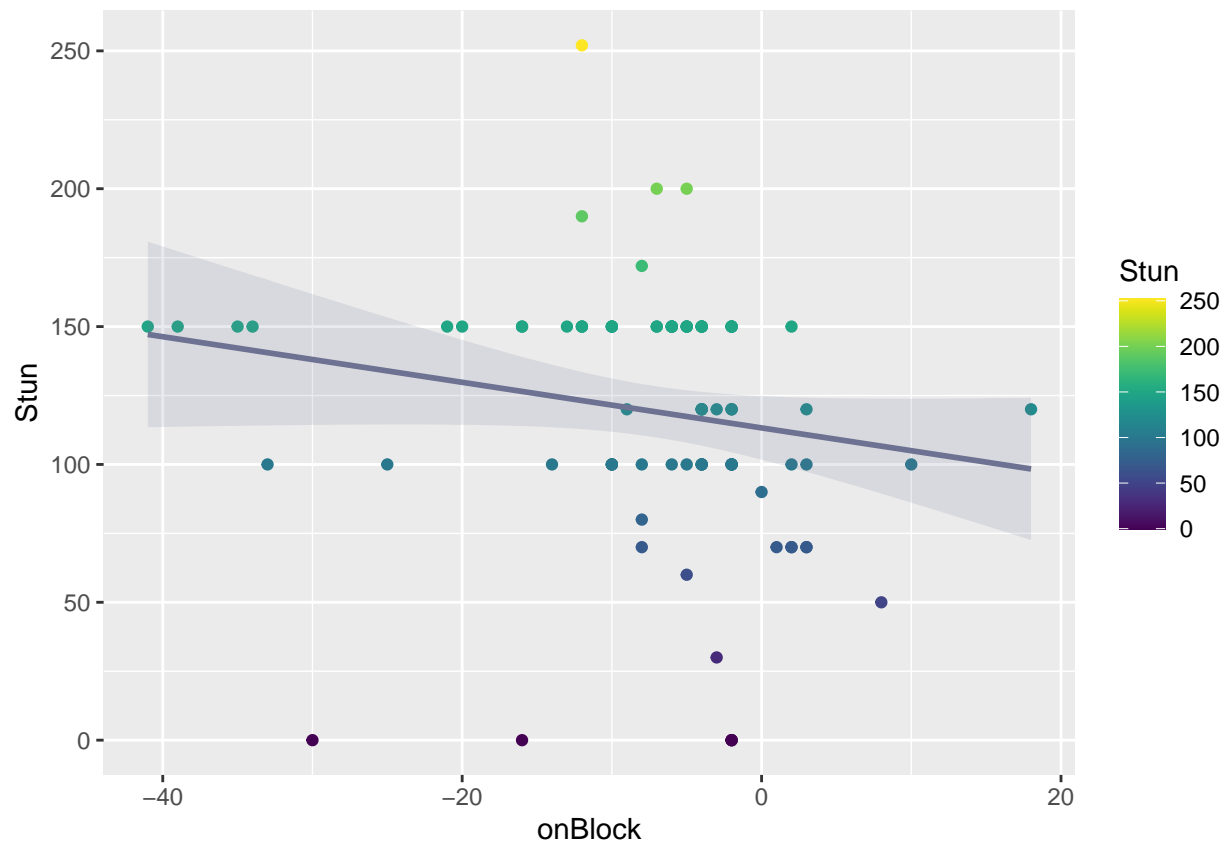


```
scatterplot(
  "data/characters/seth.csv",
  "Seth",
  "#6d7293"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -3.9727, df = 90, p-value = 0.000143
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.5477423 -0.1970280
## sample estimates:
## cor
## -0.3862581
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 74.662 -1.545
## `geom_smooth()` using formula = 'y ~ x'
```

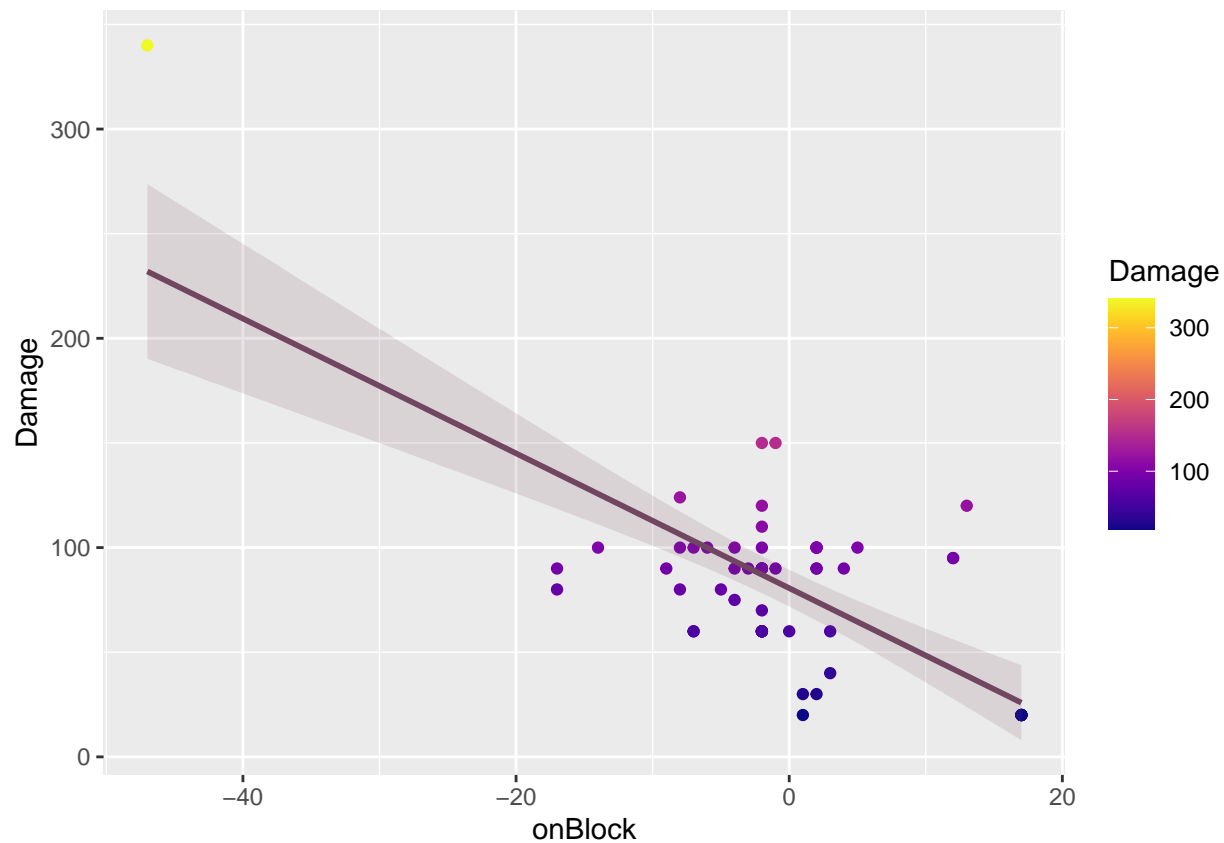


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -1.7178, df = 90, p-value = 0.08927
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.36950798 0.02765133
## sample estimates:
##      cor
## -0.1781752
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    113.2510      -0.8269
##
## `geom_smooth()` using formula = 'y ~ x'
```

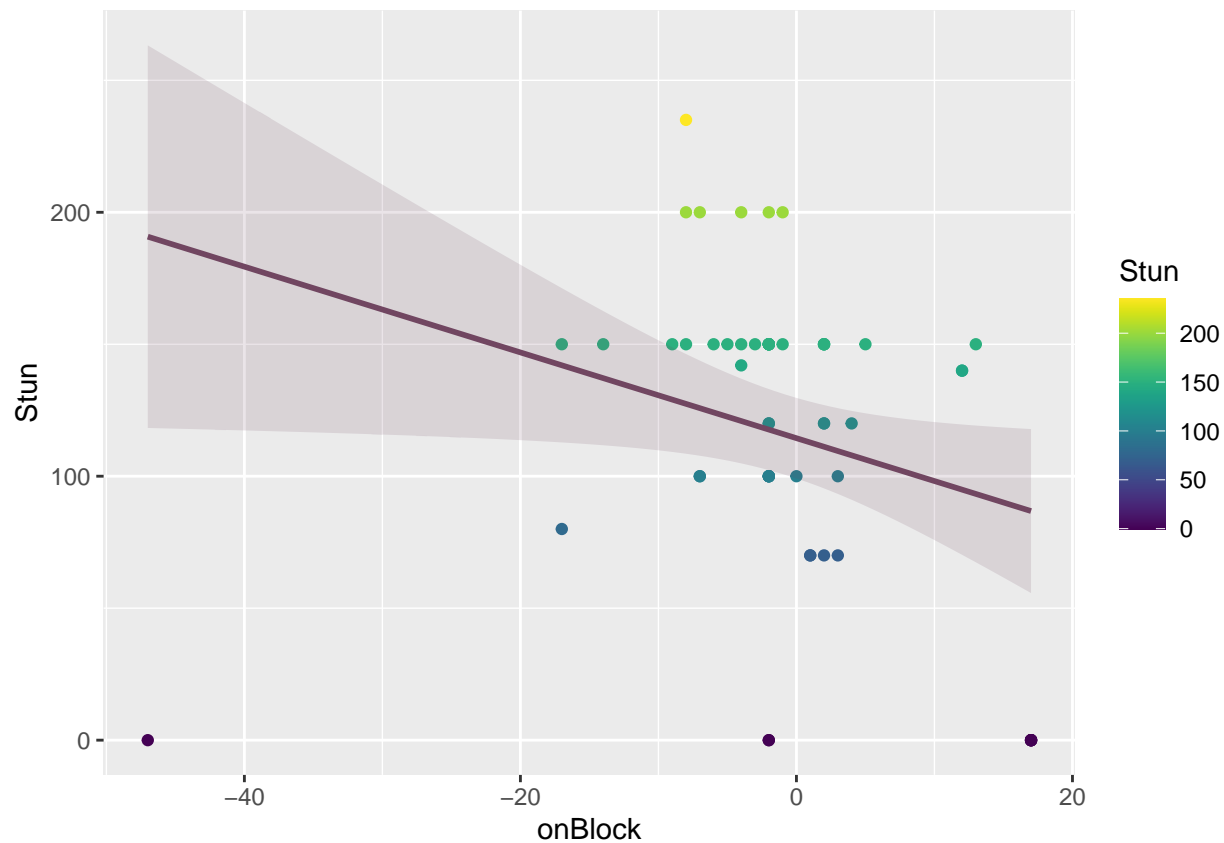


```
scatterplot(
  "data/characters/urien.csv",
  "Urien",
  "#714661"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -7.3151, df = 57, p-value = 9.493e-10
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8079619 -0.5351316
## sample estimates:
## cor
## -0.6958554
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      80.63         -3.22
## `geom_smooth()` using formula = 'y ~ x'
```



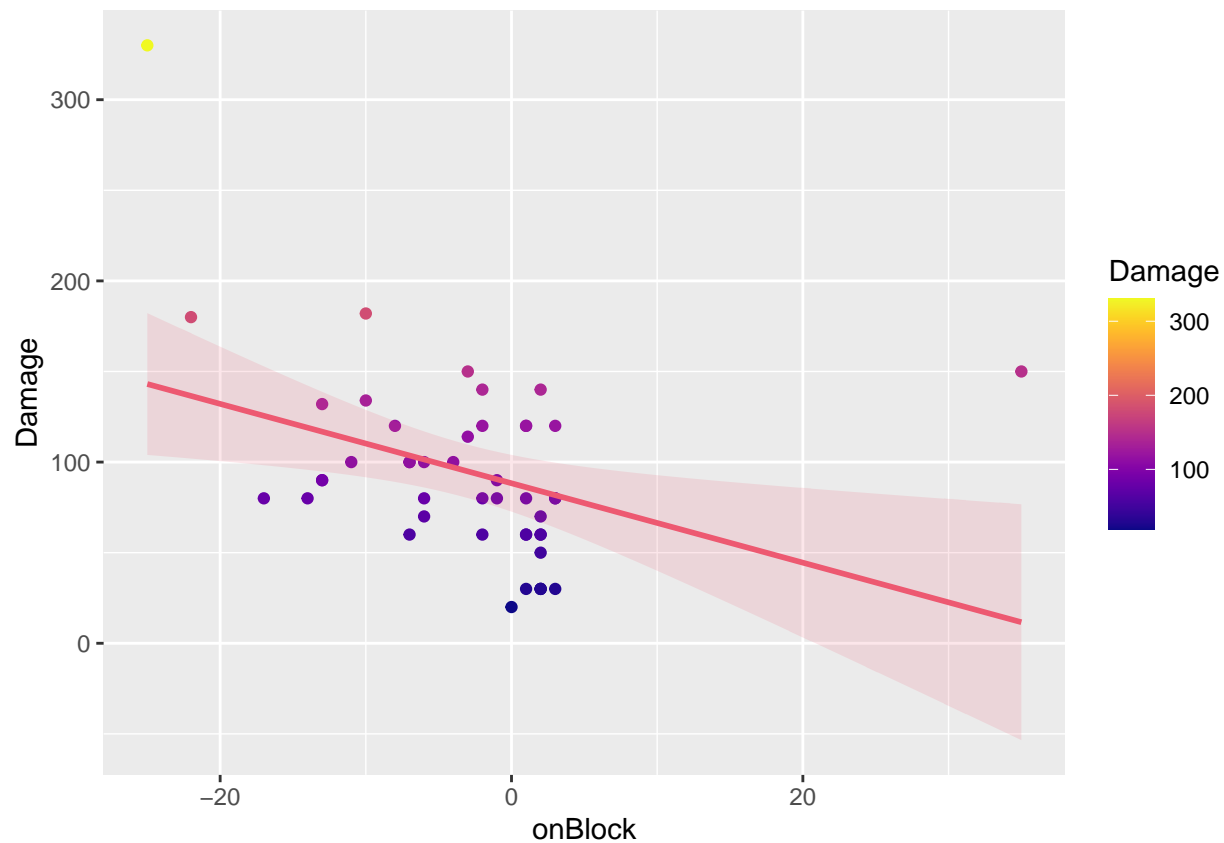
```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -2.1255, df = 57, p-value = 0.03789
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.49287132 -0.01602213
## sample estimates:
##      cor
## -0.2709925
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      114.414       -1.624
## `geom_smooth()` using formula = 'y ~ x'
```



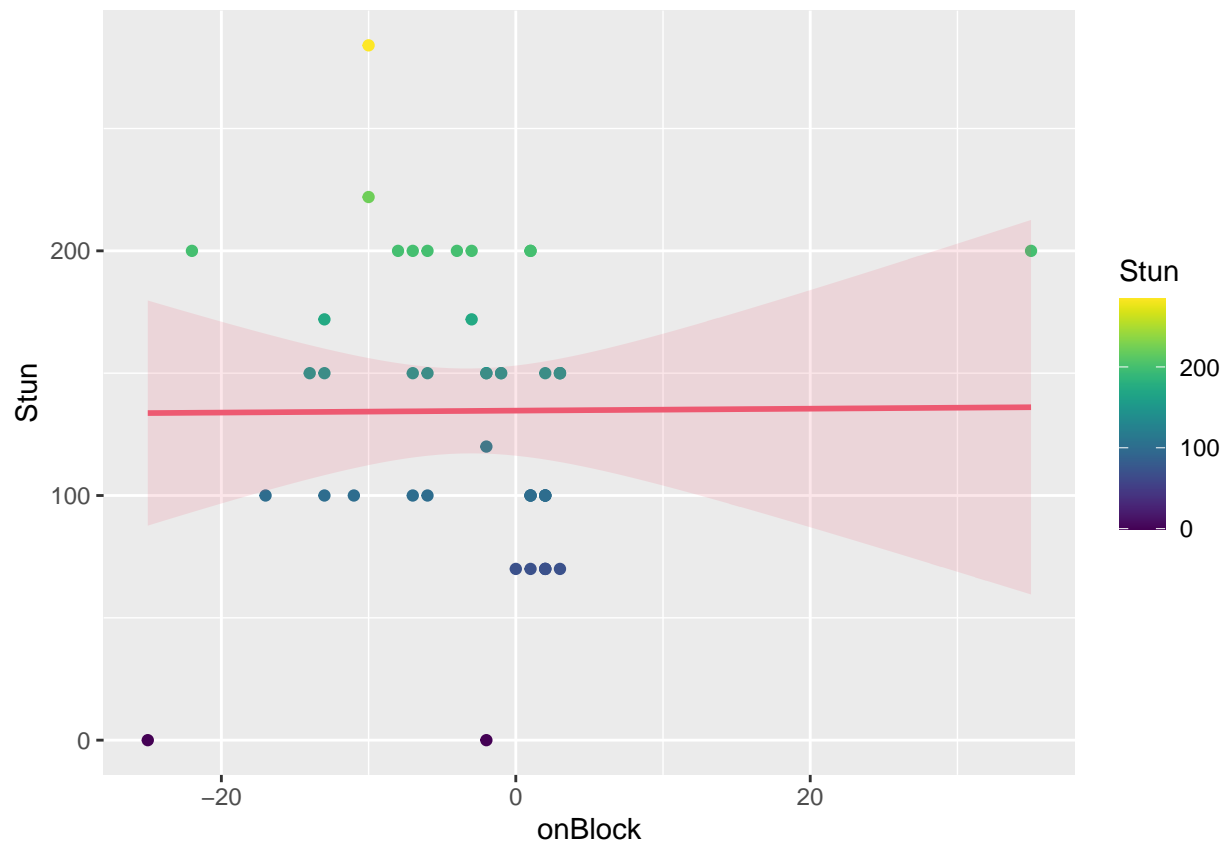
```
scatterplot(
  "data/characters/vega.csv",
  "Vega",
  "#ed5971"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -2.6583, df = 44, p-value = 0.01091
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.59774279 -0.09158693
## sample estimates:
## cor
## -0.3719946
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 88.307 -2.191
## `geom_smooth()` using formula = 'y ~ x'
```



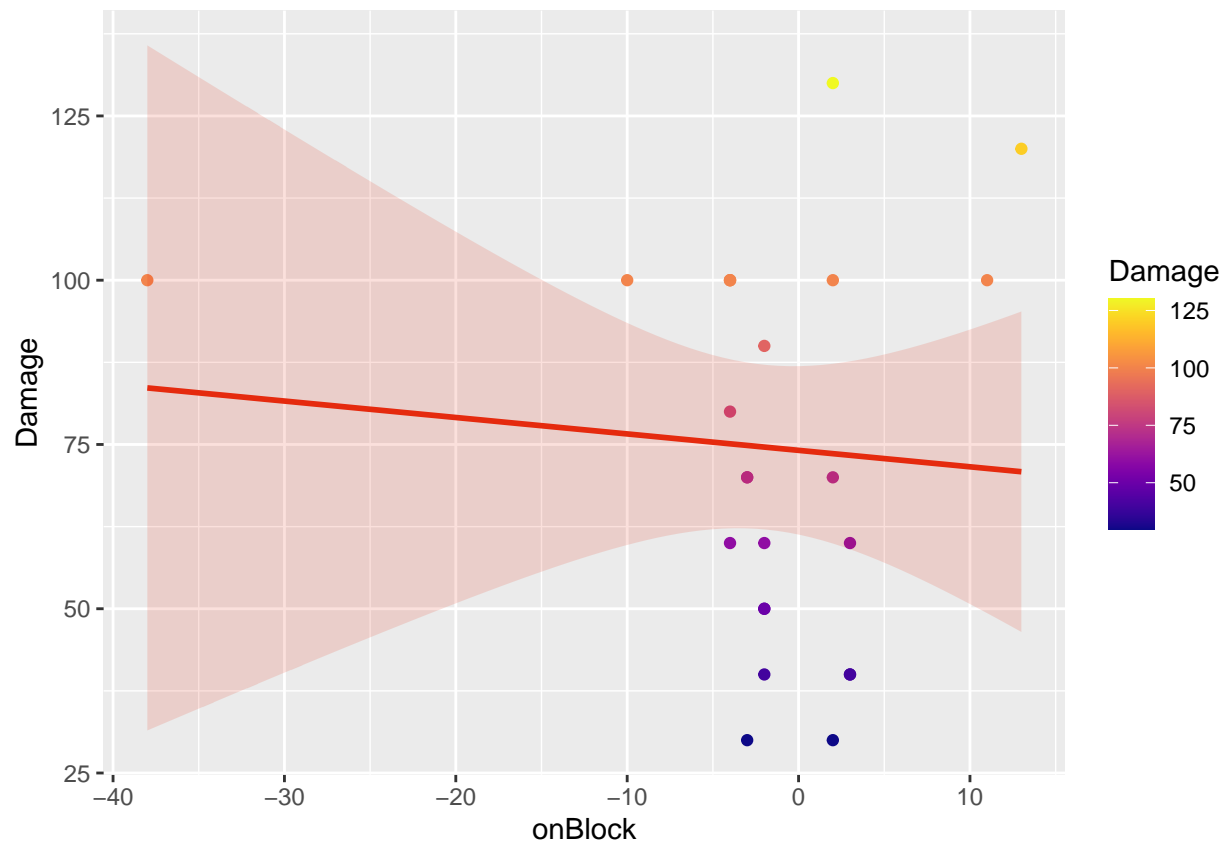


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = 0.041098, df = 44, p-value = 0.9674
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.2846142 0.2959614
## sample estimates:
##          cor
## 0.006195707
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##   134.69163      0.03983
## `geom_smooth()` using formula = 'y ~ x'
```

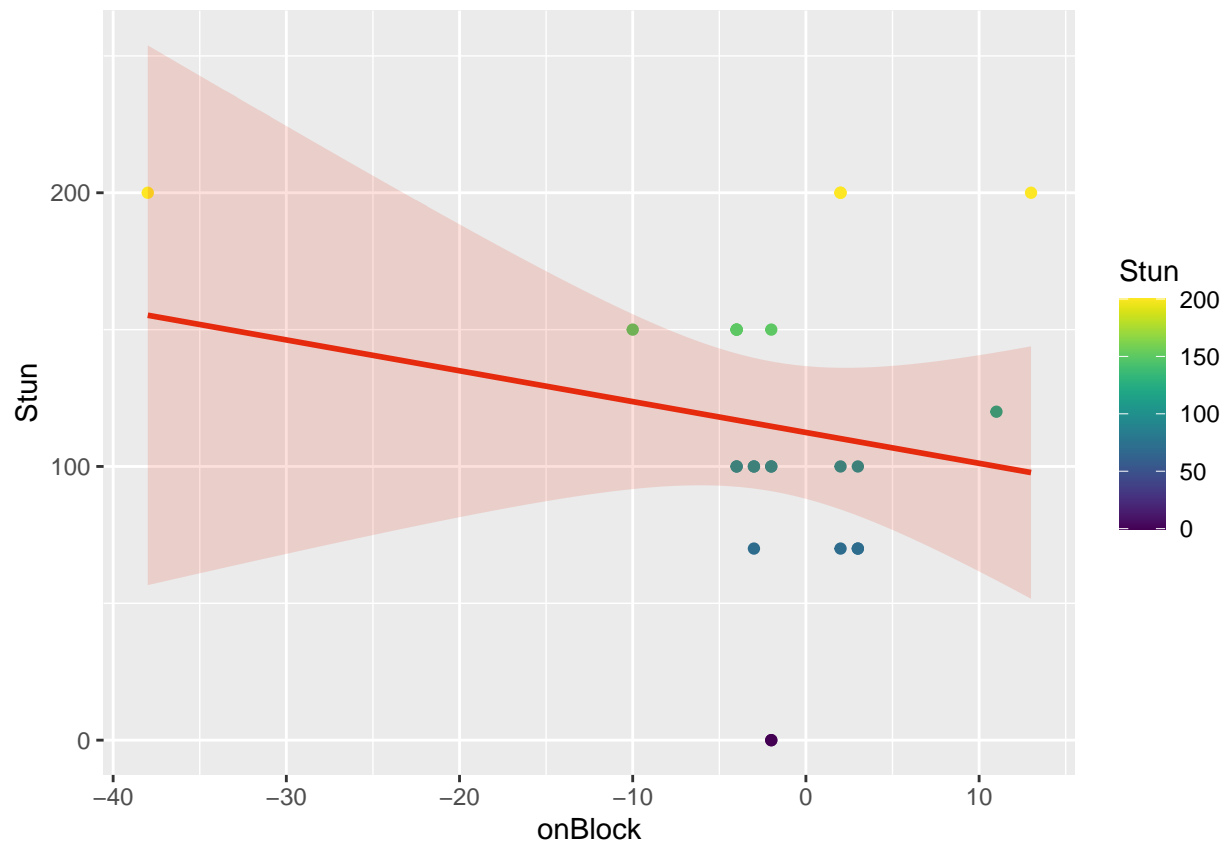


```
scatterplot(
  "data/characters/zangief.csv",
  "Zangief",
  "#e52a0e"
)

##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -0.36984, df = 22, p-value = 0.715
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4671881 0.3354272
## sample estimates:
## cor
## -0.0786056
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 74.1040 -0.2501
## `geom_smooth()` using formula = 'y ~ x'
```

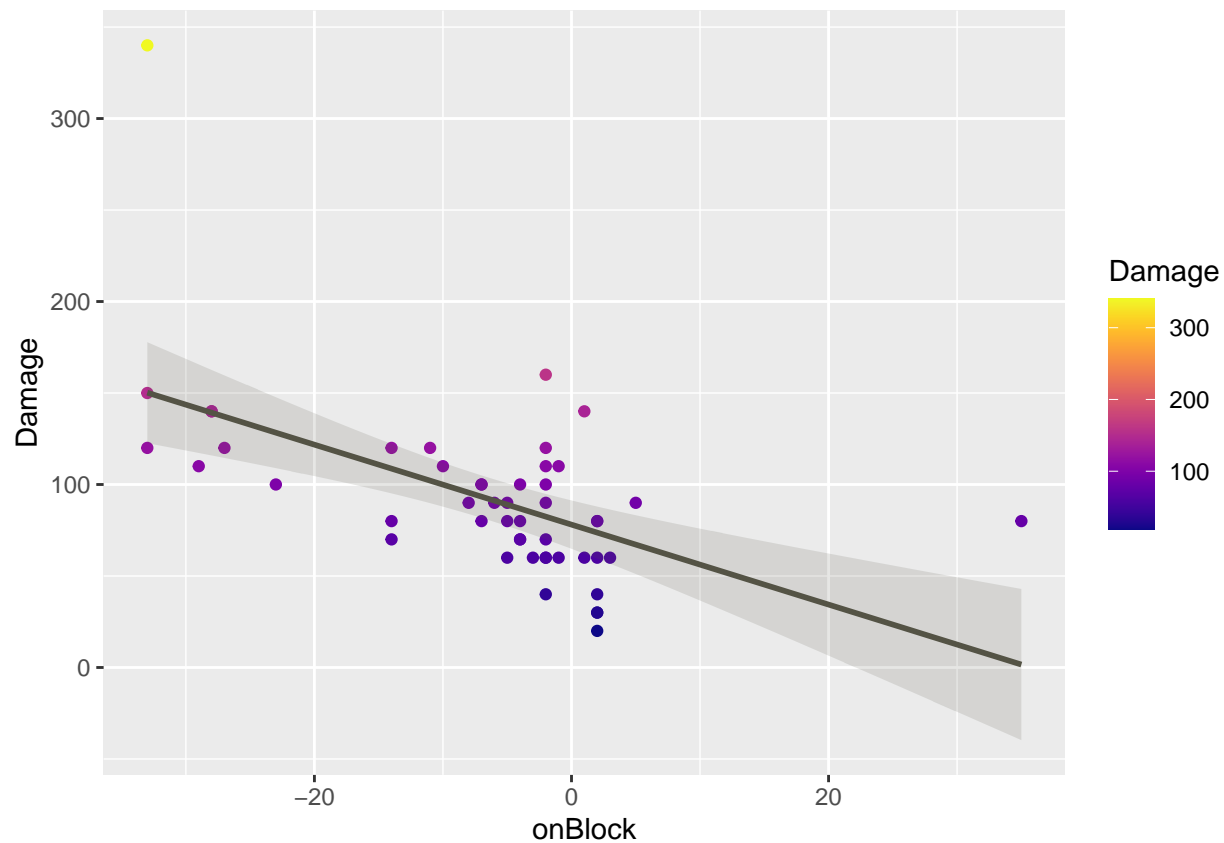


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -0.88107, df = 22, p-value = 0.3878
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.5472571 0.2363845
## sample estimates:
##      cor
## -0.1846167
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      112.423       -1.127
## `geom_smooth()` using formula = 'y ~ x'
```

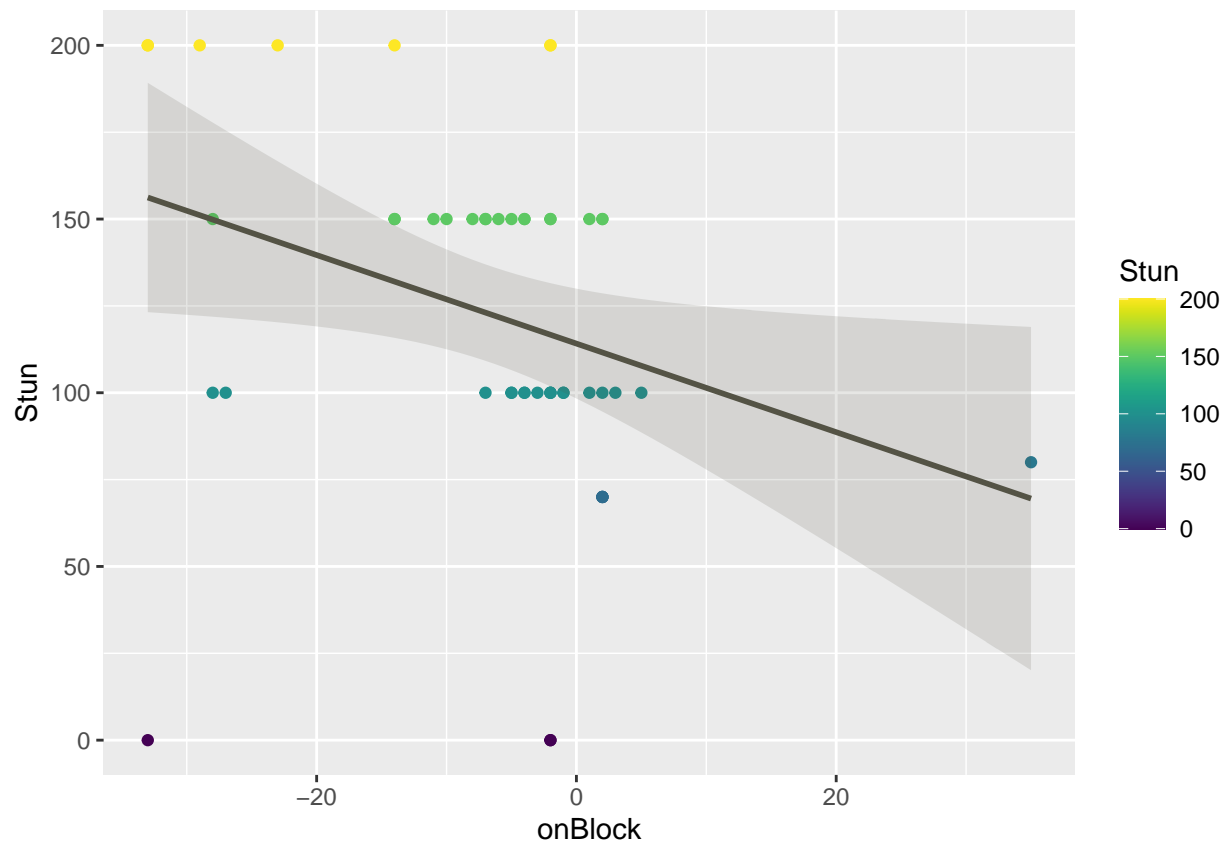


```
scatterplot(
  "data/characters/zeku_old.csv",
  "Zeku (Old)",
  "#545345"
)

##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -4.6191, df = 47, p-value = 3.01e-05
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.7259091 -0.3293178
## sample estimates:
## cor
## -0.5587705
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      78.072      -2.185
## `geom_smooth()` using formula = 'y ~ x'
```

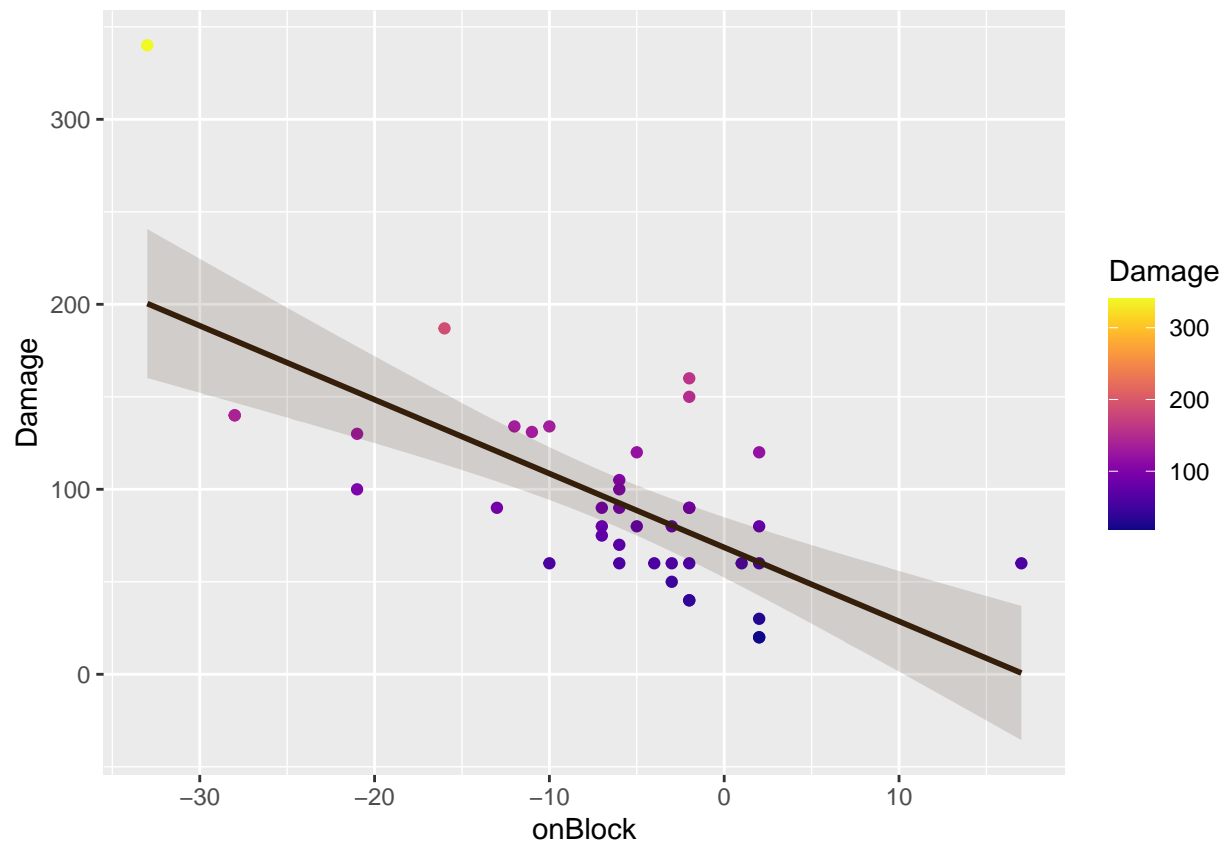


```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -2.2532, df = 47, p-value = 0.02895
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.54553598 -0.03402865
## sample estimates:
##      cor
## -0.3122375
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##      114.147       -1.275
## `geom_smooth()` using formula = 'y ~ x'
```



```
scatterplot(
  "data/characters/zeku_young.csv",
  "Zeku (Young)",
  "#351f0a"
)
```

```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Damage
## t = -5.6394, df = 38, p-value = 1.778e-06
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.8151086 -0.4602541
## sample estimates:
## cor
## -0.6749881
##
## Call:
## lm(formula = Damage ~ onBlock, data = df)
##
## Coefficients:
## (Intercept) onBlock
## 68.587 -3.994
## `geom_smooth()` using formula = 'y ~ x'
```



```
##
## Pearson's product-moment correlation
##
## data: df$onBlock and df$Stun
## t = -0.9065, df = 38, p-value = 0.3704
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.4371846 0.1739018
## sample estimates:
##      cor
## -0.145489
##
## Call:
## lm(formula = Stun ~ onBlock, data = df)
##
## Coefficients:
## (Intercept)      onBlock
##    125.7539     -0.9879
## `geom_smooth()` using formula = 'y ~ x'
```

