Day 3

Part 1

```r
library(stringr)
setwd("/Users/saumyasinghal/PycharmProjects/aoc2023")
lines <- read.delim("day3/day3.txt", sep="\n", header = F)[[1]]
```

```r
parts <- str_locate_all(lines, "(\\d+)")
```

```r
is_part <- function(row, col1, col2){
  boundary <- paste0(
    substring(lines[row-1],col1-1,col2+1),
    substring(lines[row],col1-1,col2+1),
    substring(lines[row+1],col1-1,col2+1)
  )

  if (str_detect(boundary, "[^\\.\\dNA]")){
    as.numeric(substring(lines[row],col1,col2))
  } else {
    0
  }
}

find_row_parts <- function(rownum,p){
  df <- as.data.frame(p)
  sum(mapply(is_part, row=rownum, df$start, df$end))
}
```

```r
sum(mapply(find_row_parts, 1:length(parts), parts))
```

```
## [1] 520135
```

Part 2

```r
gears <- str_locate_all(lines, "\\*")
```

```r
num_if_adjacent <- function(col1, col2, st){
  if (col1 < 6 & col2 > 2){
    as.numeric(substring(st, col1, col2))
  } else {
    1
```

1

```r
  }
}

find_gear_nums <- function(row, p){
  df <- as.data.frame(p)
  a<- mapply(num_if_adjacent, df$start, df$end, row)
  if (length(a)==0){
    1
  } else {
    prod(a)
  }
}

is_gear <- function(row, col1, col2){
  boundary <- paste(
    substring(lines[row-1],col1-1,col2+1),
    substring(lines[row],col1-1,col2+1),
    substring(lines[row+1],col1-1,col2+1)
  )

  if (str_count(boundary, "\\d+")==2){
    # now we need to extract those numbers and multiply them
    extended.boundary <- c(
      substring(lines[row-1],col1-3,col2+3),
      substring(lines[row],col1-3,col2+3),
      substring(lines[row+1],col1-3,col2+3)
    )
    nums <- str_locate_all(extended.boundary, "\\d+")
    prod(mapply(find_gear_nums, extended.boundary, nums))
  } else {
    # otherwise we return 0
    0
  }
}

find_row_gears <- function(rownum,p){
  df <- as.data.frame(p)
  #print(df)
  a <- mapply(is_gear, row=rownum, df$start, df$end)
  if (length(a)==0){
    0
  } else {
    sum(a)
  }
}

sum(mapply(find_row_gears, 1:length(gears), gears))
```

```
## [1] 72514855
```