

Question 3

a.

```
one_plot_fun <- function(input_data, x_var, y_var) {  
  if ((x_var) %in% colnames(input_data) && ((y_var) %in% colnames(input_data))) {  
    answer <- ggplot(input_data, aes_string(x=x_var, y=y_var)) + geom_point()  
    return(answer)  
  }  
  else {  
    error <- "At least one variable not contained in input_data"  
    return(error)  
  }  
}
```

```
one_plot_fun <- function(input_data, x_var, y_var) {  
  
  if ((x_var) %in% colnames(input_data) && ((y_var) %in% colnames(input_data))) {  
  
    answer <- ggplot(input_data, aes_string(x=x_var, y=y_var)) + geom_point()  
    return(answer)  
  }  
  
  else {  
    error <- "At least one variable not contained in input_data"  
    return(error)  
  }  
  
}
```

b.

```
many_plots_fun <- function(big_data, arg1) {  
  P <- list()  
  for (xx_var in arg1) {  
    for (yy_var in arg1) {  
      response <- (one_plot_fun(input_data = big_data, x_var = xx_var, y_var = yy_var))  
      if(xx_var != yy_var) {  
        P <- c(P, list(response))  
      }  
    }  
  }  
  return(P)  
}
```

```
many_plots_fun <- function(big_data, arg1) {  
  
  P <- list()  
  
  for (xx_var in arg1) {  
  
    for (yy_var in arg1) {  
  
      response <- (one_plot_fun(input_data = big_data, x_var = xx_var, y_var = yy_var))  
  
      if(xx_var != yy_var) {  
  
        P <- c(P, list(response))  
  
      }  
    }  
  }  
  
  return(P)  
}
```