

Functionals

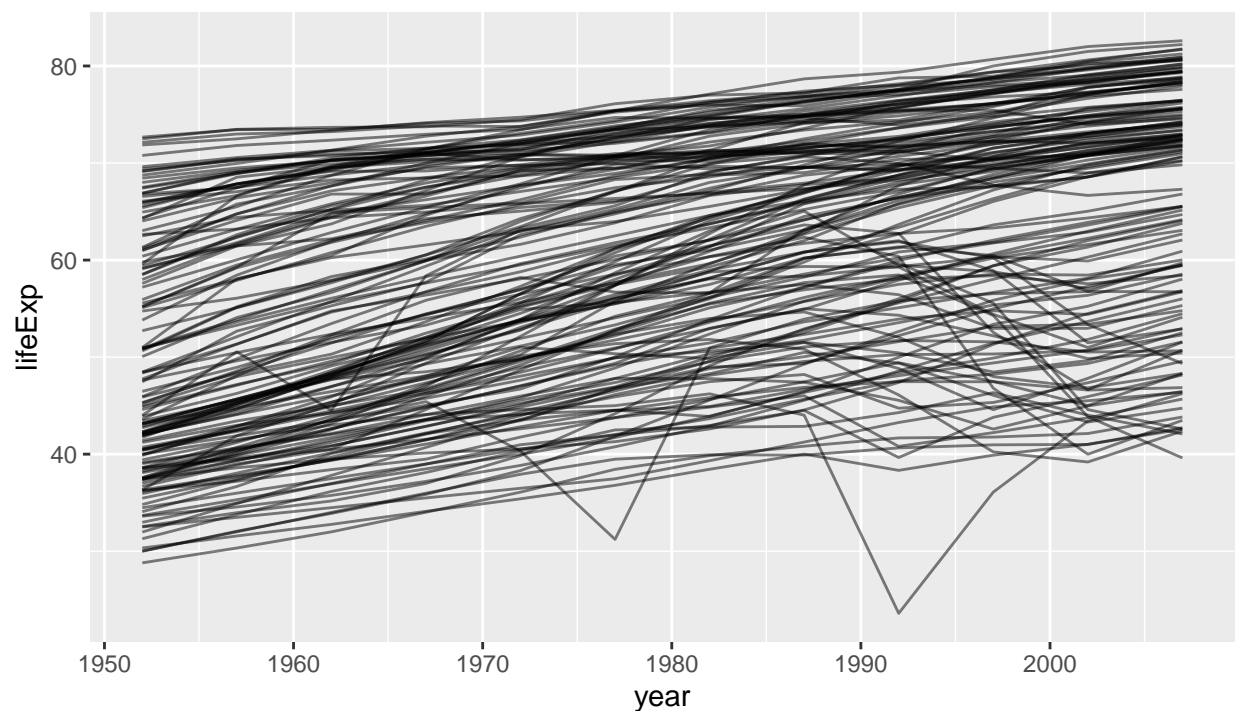
Question:

Use the gapminder dataset.

```
library(gapminder)
data(gapminder)
head(gapminder)
```

```
# A tibble: 6 x 6
  country    continent  year  lifeExp    pop  gdpPercap
  <fct>      <fct>    <int>  <dbl>  <int>  <dbl>
1 Afghanistan Asia      1952   28.8  8425333   779.
2 Afghanistan Asia      1957   30.3  9240934   821.
3 Afghanistan Asia      1962   32.0 10267083   853.
4 Afghanistan Asia      1967   34.0 11537966   836.
5 Afghanistan Asia      1972   36.1 13079460   740.
6 Afghanistan Asia      1977   38.4 14880372   786.
```

```
library(ggplot2)
ggplot(gapminder, aes(x=year, y=lifeExp, group=country)) +
  geom_line(alpha=0.5)
```



Write an R code to estimate β_0 and β_1 of $lifeExp = \beta_0 + \beta_1 year$ using least squares approach for each country.

Plot the distribution of $\hat{\beta}_1$ values. Interpret the results.