Übung 4

In modern vehicles there are about 80-200 ECUs. The total code size of different products are listed:

Code: Hubble: ca. 4 million lines of code

Boing 787: ca. 12 million lines of code

Modern vehicle (125 ECUs): >100 million lines of code

In the early development phase there are typically 5-20 bugs per 1000 lines of code

--> Calculate the expected number of bugs in the Hubble system, the Boing 787 and a modern vehicle

Hubble:

4.000.000 lines of code

$$Bugs\_min = \frac{\frac{4\,000\,000}{1000}}{5} = \frac{20\,000\,000}{1000} = 20\,000$$

$$Bugs\_max = \frac{\frac{4\,000\,000}{1000}}{20} = \frac{80\,000\,000}{1000} = 80\,000$$

zwischen 20.000 & 80.000 Bugs erwartbar

Boing 787:

12.000.000 lines of code

$$Bugs\_min = \frac{\frac{12\,000\,000}{1000}}{5} = \frac{60\,000\,000}{1000} = 60\,000$$

$$Bugs\_max = \frac{\frac{12\,000\,000}{1000}}{20} = \frac{240\,000\,000}{1000} = 240\,000$$

zwischen 60.000 & 240.000 Bugs erwartet

Modernes Auto:

100 000 000 lines of code

$$Bugs\_min = \frac{\frac{100\,000\,000}{1000}}{5} = \frac{500\,000\,000}{1000} = 500\,000$$

$$Bugs\_max = \frac{\frac{100\,000\,000}{1000}}{20} = \frac{20\,000\,000\,000}{1000} = 2\,000\,000$$

zwischen 500.000 & 2.000.000 Bugs erwartet