Problem. What can you say about the Kolmogorov complexity of the string 110100... in which the sequence 110 is repeated 2024 times?

Solution. Kolmogorov complexity of a string $x$ is the length of the shortest program that computes this string. The given string $x$ can be generated by the following program:

```java
for(i = 1; i <= 2024; i++)
    System.out.print("110");
```

that has length 56. Thus, the Kolmogorov complexity $K(x)$ – i.e., the length of the shortest program for computing this string – must be smaller than or equal to 56: $K(x) \leq 56$. 

Solution to Homework 39