Intro

A java file that we need to get the flag from.

Flag

`picoCTF{700l1ng_r3qu1r3d_2bfe1a0d}`

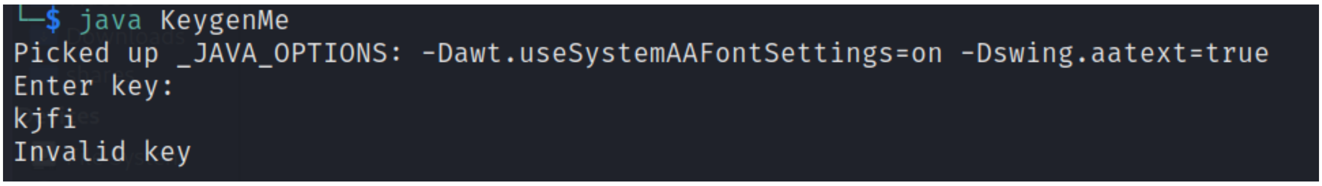
Solution

First we can start by getting the file type of the downloaded file by running `file KeygenMe.class` and we got

```
KeygenMe.class: compiled Java class data, version 55.0
(Java SE 11)
```

Running the file

Since this a java file, we can just run it by `java KeygenMe` and it prompts a key.

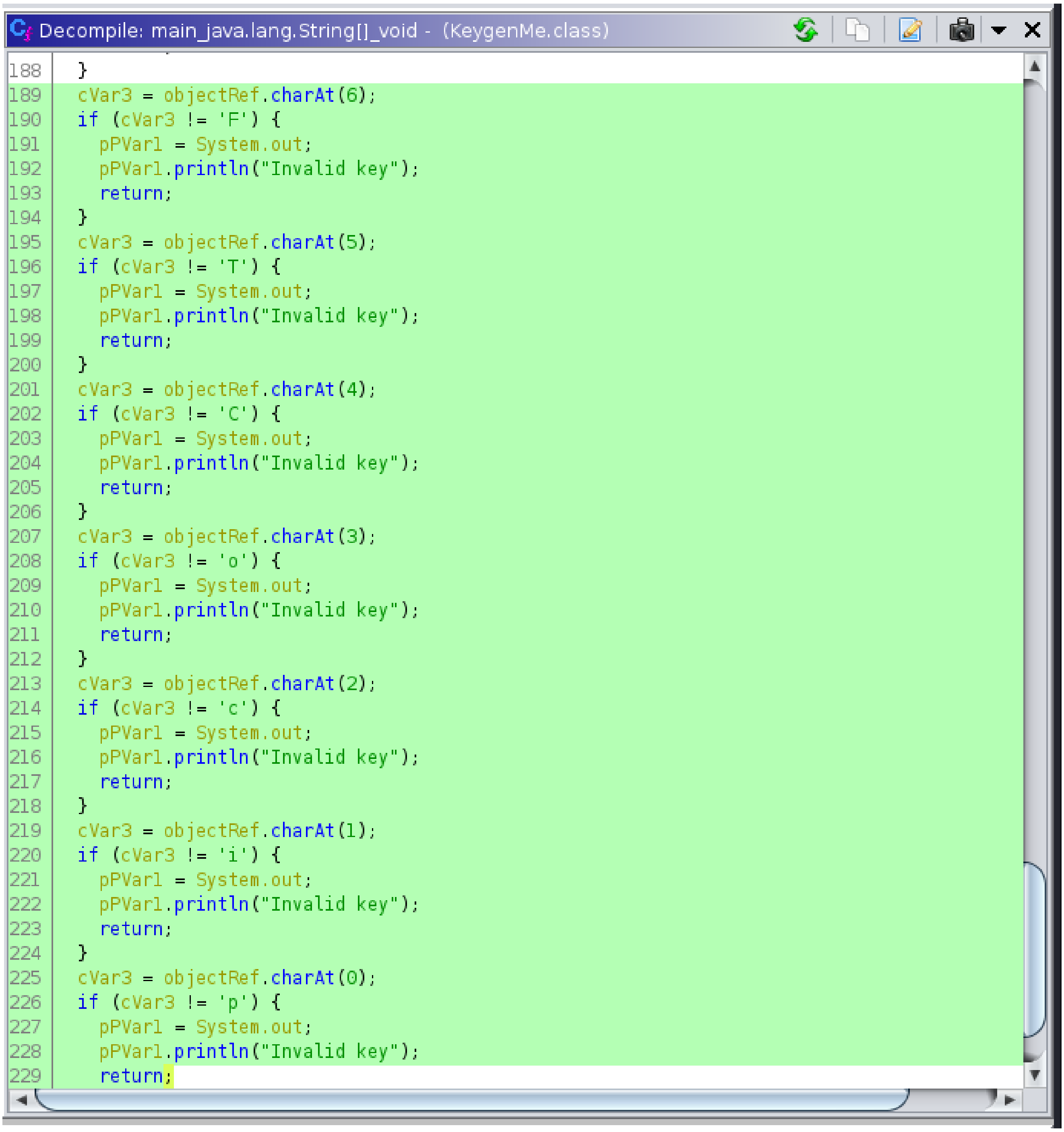


```
└─$ java KeygenMe
Picked up _JAVA_OPTIONS: -Dawt.useSystemAAFontSettings=on -Dswing.aatext=true
Enter key:
kjfi
Invalid key
```

If the key is invalid it just spits this out and exits.

Analyzing the binary

After loading, analyzing and decompiling this file into `ghidra`, I found the main function checks on the flag character by character!



```
  }
  cVar3 = objectRef.charAt(6);
  if (cVar3 != 'F') {
    pPVar1 = System.out;
    pPVar1.println("Invalid key");
    return;
  }
  cVar3 = objectRef.charAt(5);
  if (cVar3 != 'T') {
    pPVar1 = System.out;
    pPVar1.println("Invalid key");
    return;
  }
  cVar3 = objectRef.charAt(4);
  if (cVar3 != 'C') {
    pPVar1 = System.out;
    pPVar1.println("Invalid key");
    return;
  }
  cVar3 = objectRef.charAt(3);
  if (cVar3 != 'o') {
    pPVar1 = System.out;
    pPVar1.println("Invalid key");
    return;
  }
  cVar3 = objectRef.charAt(2);
  if (cVar3 != 'c') {
    pPVar1 = System.out;
    pPVar1.println("Invalid key");
    return;
  }
  cVar3 = objectRef.charAt(1);
  if (cVar3 != 'i') {
    pPVar1 = System.out;
    pPVar1.println("Invalid key");
    return;
  }
  cVar3 = objectRef.charAt(0);
  if (cVar3 != 'p') {
    pPVar1 = System.out;
    pPVar1.println("Invalid key");
    return;
```

Here, you can see that it checks if the 0th char is a `p` and the 1st char to be `i` and the third to be `c`... etc. This implies that it will be `picoCTF{...}`

Extracting the key

After concatenating these letters, we will get `picoCTF{700l1ng_r3qu1r3d_2bfe1a0d}` and it is valid!