

# Week 3 Homework

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## 1 Unix Lab Preparation

### 1.1 Going through lecture slides

Notes on the `file` command that I was not familiar with:

1. Uses heuristics to work out what kind of file it is
2. Does not depend on file extension - when the file is renamed without the “.c” extension, it still recognises it as c program text
3. It can identify the difference between directories and files

### 1.2 Going through learn moreunix and learn advunix

I am already quite familiar with Unix, so I skipped the learn unix tutorial, and quickly did the other two:

1. `ls` takes a flag `-t` that sorts the items by date, listing the newest files first.
2. `grep` can be used to find all the lines in a file that contains a certain string sequence.
3. If you pipe `ls > list`, the file `list` is included in the output! Also, the output file is cleared, whether or not the command on the left succeeds.
4. `pr` can be used to format files nicely, and into columns as well using `pr -2` for example for 2 columns.

## 2 Code Outline for Random Number Generator

### 2.1 Defining constants

Define the following constants:

1. SEED\_VALUE
2. MULTIPLIER
3. ADDITIVE
4. MODULUS

### 2.2 Pseudocode

```
int next(int curr)
    return (MULTIPLIER * curr + ADDITIVE) % MODULUS

int lcg(int n)
{
    curr = SEED_VALUE
    for i = 1 to n
        print curr
        curr = next(curr)
}
```

For the modifications where two numbers are printed on a line, just cache the last number calculated in a variable, and require that at least 2 numbers are printed.

## 3 Answers to Ethics Questions

### 3.1 Response

I am opposed to the behaviour of Bertie, as under no circumstances should others' intellectual property be passed off as your own. The fact that they had not been taught the material in lectures is no excuse, because everyone in the course would have been in the same position; to ensure a level playing field, Bertie should not have passed that code off as his own.

### 3.2 Additional Information

#### 3.2.1 Everyone did it

The fact that everyone did it does not excuse this unacceptable practice. If anything, it might demonstrate a lack of understanding of plagiarism in general among students. My attitude to Bertie and his friends at the possibility of being caught by the plagiarism software is one of "tough luck" - they should have known better.

#### 3.2.2 Excessive expectations from lecturers

Although on hearing this piece of research, I feel some sympathy towards Bertie and his friends, as I myself am an overworked university student, but his behaviour is still objectionable. Firstly, if they did in fact feel that the lecturers had expected too much of them, they should have brought the issue up with their lecturers and negotiated a more user-friendly workload. In addition, the way in which Fred presented the document was to legitimise wrongful behaviour and not to present a case to ensure fairness for all.

### **3.2.3 Plagiarism was last resort**

This time Bertie should be commended for at least trying his utmost best to resolve the issues, but once again, my position is that under no circumstances should someone else's work be passed off as your own without credit. The whole purpose of assignments is to assess students and allow students to gain practice with the material, and plagiarism does the student no favours.

### **3.2.4 Pressure from parents**

Firstly, university students should not allow their parents to dictate their choice of subjects; he should have stood up against them. However, even if there were exceptional circumstances that justified his parents forcing him to take this subject, if he wants to pass, Bertie needs to put in the effort required to get a pass to ensure fairness in the system for all students; his excuse is not valid.

### **3.2.5 Bertie receives top marks**

Bertie has even fewer excuses in this scenario, as tutors and lecturers were available for consultation and to assist him with difficulties. It is likely that he would not have needed to resort to plagiarism to finish his assignment. In this situation, the problem is that he has affected others much more by getting top marks, which punishes those who have done the assignment legitimately.

### **3.2.6 Bertie has trouble later on**

This makes the point that assignments are a valuable learning tool, it serves you no good to plagiarise. In a sense, Bertie is suffering from his own actions, and this is a just outcome for all.

### **3.2.7 Assignment was for diagnostic purposes**

Once again, Bertie affects others through his actions - in this case, lecturers who seek to use the assignment as a diagnostic tool. It also affects other students as the lecturers cannot gain a true sense of the abilities of the cohort.

## **4 Sample Quiz**

Option d) is the correct answer, as `c` has not been defined in the current scope when `printf` is called.