CS2106 Tutorial 9
AY 25/26 Sem 1 — github/omgeta

Q1. (a.) $W(9,3) = \{3,4,5\}$
$W(11,3) = \{2,3,5\}$
$W(11,3) = \{2,3,4,5\}$
$W(11,4) = \{2,3,5\}$

(b.) Keep each processes's resident set $\geq |W(T, \Delta)|$ to avoid thrashing

(c.) Reference history over the page over last K memory accesses

Q2. (a.) `printf`, `<<`

(b.) stdout buffer is full without flushing. Adding "
n" flushes the line.

(c.)
```
// Read "arraySize" items from "File" and place in the
    "outputArray"
BufferedFileRead( File, outputArray, arraySize )
  if Buffer.available < arraySize
    read(File, Buffer, Buffer.size - Buffer.available)
    Buffer.available =  Buffer.size

  copy(outputArray, Buffer, Buffer.available)
  Buffer.available = 0
```

Q3. (a.) Fails if attempting to open a file descriptor with file table entry set to Op Type: Write.

(b.) Fails when the file descriptor is not found in open file table.

(c.) File descriptor tables are unique in each PCB, so processes cannot overwrite other processes file descriptors.

(d.) Files with file table entry set to Op Type: Read can be opened but the file is locked for writes.

(e.) stdin, stdout have fd 0, 1 per process and are linked by the open file table to the "real" stdin, stdout files. With piping, the processes overwrite 0 and 1 in the PCB to the files passed.