

# Systems Programming: IT628

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Q3: Explain the differences between following commands using the three tables Process File Descriptor Table, System-Wide Open File Table and System-Wide iNode Table. Also If file1.txt is zero bytes before these calls were executed what will be the content after the execution.

```
char buf1[11]="abcdefghij";  
char buf2[6]="12345";  
int fd1 = open("file1.txt", r+);  
write(fd1, buf1, 10);  
int fd2 = open("file1.txt", r+);  
write(fd2, buf2, 5);  
int fd3 = 100;  
dup2(fd2, fd3);  
write(fd3, buf1, 5);
```

Q3 Answer:

1. In the first table, the Process File Descriptor Table, we have created three fds fd1, fd2, fd3, and fd3 with dup2(fd2) fd2 and fd3 will have the same file offset.
2. fd1 offset will point to another file, and fd2 and fd3 offset will point to the same file in the system.
3. If file1.txt is zero bytes before these calls were executed, the content after execution will be 12345fghij.

Process file descriptor table:

No	FD Flags	File Pointer
1		
2		4
3		
4		4
5		
6		4
7		

System wide open file table:

No	File Offset	Status Flags and Access	Reference Count	Inode Pointer
1				
2				
3				
4	1	O_RDWR	1	5
5				
6	2	O_RDWR	2	5

System wide inode table:

No	File Type	File locks	File Properties
1			
2			
3	Regular		
...			

