

~/Desktop/OS-Assignment/Shell (0.158s)

gcc shell.c

~/Desktop/OS-Assignment/Shell (4m 43.67s)

./a.out

myshell> pwd

/home/mohammed-yahya/Desktop/OS-Assignment/Shell

myshell> ls

a.out 'Screenshot from 2024-12-27 20-19-17.png' shell.c

myshell> echo "Hello World"

"Hello World"

myshell> echo "this is sample text" > output.txt

myshell> cat output.txt

"this is sample text"

myshell> ls > output.txt

myshell> cat output.txt

a.out

output.txt

Screenshot from 2024-12-27 20-19-17.png

shell.c

myshell> cat output.txt | grep shell

shell.c

myshell> ls | grep .txt

output.txt

myshell> exit

```
~/Desktop/OS-Assignment/Banker's (2m 7.10s)
./a.out

Enter number of processes: 3
Enter number of resources: 3

Enter number of available resources:
Resource 0: 4
Resource 1: 4
Resource 2: 4

Enter maximum resource claims for each process:
Process 0:
Resource 0: 2
Resource 1: 3
Resource 2: 4
Process 1:
Resource 0: 4
Resource 1: 3
Resource 2: 2
Process 2:
Resource 0: 2
Resource 1: 3
Resource 2: 4

Enter current resource allocation for each process:
Process 0:
Resource 0: 1
Resource 1: 1
Resource 2: 1
Process 1:
Resource 0: 1
Resource 1: 1
Resource 2: 1
Process 2:
Resource 0: 2
Resource 1: 2
Resource 2: 2

Checking if system is in safe state:
System is in safe state.
Safe sequence: P0 P1 P2
```

~/Desktop/OS-Assignment/Banker's (56.625s)

./a.out

Enter number of processes: 3

Enter number of resources: 3

Enter number of available resources:

Resource 0: 2

Resource 1: 2

Resource 2: 2

Enter maximum resource claims for each process:

Process 0:

Resource 0: 6

Resource 1: 7

Resource 2: 8

Process 1:

Resource 0: 8

Resource 1: 7

Resource 2: 6

Process 2:

Resource 0: 6

Resource 1: 7

Resource 2: 8

Enter current resource allocation for each process:

Process 0:

Resource 0: 1

Resource 1: 1

Resource 2: 0

Process 1:

Resource 0: 1

Resource 1: 0

Resource 2: 1

Process 2:

Resource 0: 0

Resource 1: 1

Resource 2: 1

Checking if system is in safe state:

System is not in safe state

Initial state is unsafe. Exiting.

```
~/Desktop/OS-Assignment/Hashed-Page-Table (0.084s)
```

```
gcc hashed_page.c
```

```
~/Desktop/OS-Assignment/Hashed-Page-Table (0.024s)
```

```
./a.out
```

```
Inserting pages into the hash table...
```

```
Inserted: Virtual Page 0 -> Physical Frame 0
```

```
Inserted: Virtual Page 1 -> Physical Frame 1
```

```
Inserted: Virtual Page 2 -> Physical Frame 2
```

```
Inserted: Virtual Page 3 -> Physical Frame 3
```

```
Inserted: Virtual Page 4 -> Physical Frame 4
```

```
Inserted: Virtual Page 5 -> Physical Frame 5
```

```
Inserted: Virtual Page 6 -> Physical Frame 6
```

```
Inserted: Virtual Page 7 -> Physical Frame 7
```

```
Inserted: Virtual Page 8 -> Physical Frame 8
```

```
Inserted: Virtual Page 9 -> Physical Frame 9
```

```
Inserted: Virtual Page 10 -> Physical Frame 10
```

```
Inserted: Virtual Page 11 -> Physical Frame 11
```

```
Inserted: Virtual Page 12 -> Physical Frame 12
```

```
Inserted: Virtual Page 13 -> Physical Frame 13
```

```
Inserted: Virtual Page 14 -> Physical Frame 14
```

```
Inserted: Virtual Page 15 -> Physical Frame 15
```

```
Inserted: Virtual Page 16 -> Physical Frame 0
```

```
Inserted: Virtual Page 17 -> Physical Frame 1
```

```
Inserted: Virtual Page 18 -> Physical Frame 2
```

```
Inserted: Virtual Page 19 -> Physical Frame 3
```

Hash Page Table Status:

```
-----  
Index 0: (VP: 0, PF: 0) -> (VP: 16, PF: 0) -> NULL  
Index 1: (VP: 1, PF: 1) -> (VP: 17, PF: 1) -> NULL  
Index 2: (VP: 2, PF: 2) -> (VP: 18, PF: 2) -> NULL  
Index 3: (VP: 3, PF: 3) -> (VP: 19, PF: 3) -> NULL  
Index 4: (VP: 4, PF: 4) -> NULL  
Index 5: (VP: 5, PF: 5) -> NULL  
Index 6: (VP: 6, PF: 6) -> NULL  
Index 7: (VP: 7, PF: 7) -> NULL  
Index 8: (VP: 8, PF: 8) -> NULL  
Index 9: (VP: 9, PF: 9) -> NULL  
Index 10: (VP: 10, PF: 10) -> NULL  
Index 11: (VP: 11, PF: 11) -> NULL  
Index 12: (VP: 12, PF: 12) -> NULL  
Index 13: (VP: 13, PF: 13) -> NULL  
Index 14: (VP: 14, PF: 14) -> NULL  
Index 15: (VP: 15, PF: 15) -> NULL  
-----
```

Total collisions: 4

Performing page lookups:

```
Found: Virtual Page 0 -> Physical Frame 0  
Found: Virtual Page 5 -> Physical Frame 5  
Found: Virtual Page 10 -> Physical Frame 10  
Found: Virtual Page 15 -> Physical Frame 15  
Virtual Page 31 not found
```