Government Engineering College, Thrissur

CS331 – System Software Lab

Documentation -

Exp2 – File Allocation Strategies

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Experiment 2

Simulate the following file allocation strategies

1. Sequential 2. Linked 3.Indexed

Compilation of Code

Prerequisite

- The code is provided in the **program.c** along with this documentation. You can open the terminal in Linux (Ubuntu 20.04 tested). Then run the command

  gcc program.c

  ./a.out

- You will see the content of the **input.txt** in the first part. If you want to change input.txt then change the code in the format

  There are **four input files in this program**

  1. Sequential: **sequential_input.txt**

     If we want to change the contents of the file. Enter it in the following format

     Starting Address (Number) <Tab> Length(Number) <Tab> Content as string

  2. Linked: **linked_memory_input.txt** and **linked_process_input.txt**

     - ***linked_memory_input.txt:*** If we want to change the contents of the file containing the memory link information. Enter it in the following format

       Current Address (Number) <Tab> Next Address(Number)

     - ***linked_process_input.txt:*** If we want to change the contents of the file containing the process information. Enter it in the following format

       Process ID (Number) <Tab> Length(Number) <Tab> Content as string

  3. Indexed: **indexed_input.txt**

     If we want to change the contents of the file. Enter it in the following format

     Starting Address (Number) <Tab> Length(Number) <Tab> Index (Number) <Tab> Content as string

  Note that there should not be new line or balank line at the end of file

- Output of the code will be printed on the **console** as well as to a text file named **output.txt**
- **Note: Please see the my_machine_output.txt file for the output I got on my machine.**

Output / Screenshots

Menu

```
shuaib@shuaib-pc:~/Documents/ss/exp2$ ./a.out
-----------------Menu----------------
1.Sequential
2.Linked
3.Indexed
4.Exit
Select:1
```

Output of each menu item

1. Sequential Allocation Strategy

Input

```
Sequential Allocation
Enter the number of blocks: 8
File Content
Starting Address        Length  Content
1                       3               abc
2                       1               x
7                       2               yz
9                       3               pqr
```

Output

```
Request's Starting Address:
1       Allocated
2       Not allocated
7       Allocated
9       Not allocated
Status of memory blocks         Blocks          Contents
        1                       Occupied        a
-------------------------------------------------
        2                       Occupied        b
-------------------------------------------------
        3                       Occupied        c
-------------------------------------------------
        4                       Free
-------------------------------------------------
        5                       Free
-------------------------------------------------
        6                       Free
-------------------------------------------------
        7                       Occupied        y
-------------------------------------------------
        8                       Occupied        z
-------------------------------------------------
```

2. Linked File Allocation Strategy

Input

```
Linked Allocation
Enter the number of blocks: 10
Memory File Content
Current Node     Next Node
1                5
5                2
2                7
7                3
3                4
4                6
Process File Content
Process Length   Content
P1               3               abc
P2               1               x
P3               2               yz
P4               3               pqr
```

Output

```
Process          Start           End             Status
P1               1               2               Alloted
P2               7               7               Alloted
P3               3               4               Alloted
P4               6                               Not Alloted

Contents of Process
P1
        1       a
        2       c
        5       b
--------------------------------
P2
        7       x
--------------------------------
P3
        3       y
        4       z
--------------------------------
P4
--------------------------------
```

P.T.O

3. Indexed File Allocation Strategy

Input

```
Indexed Allocation
Enter the number of blocks: 10
Process File Content
Process Length  Index   Content
P1      3       7       abc
P2      1       8       x
P3      2       3       yz
P4      3       4       pqr
```

Output

```
Process         Index           Blocks          Status
-----------------------------------------------------
P1      7       1, 2, 3,                Alloted
-----------------------------------------------------
P2      8       4,              Alloted
-----------------------------------------------------
P3      3                               Not Alloted
-----------------------------------------------------
P4      4                               Not Alloted
-----------------------------------------------------

Allocation
Index   Block   Contents
-----------------------------------------------------
7       1       a
-----------------------------------------------------
7       2       b
-----------------------------------------------------
7       3       c
-----------------------------------------------------
8       4       x
-----------------------------------------------------
```

4. Exit

```
----------------Menu---------------
1.Sequential
2.Linked
3.Indexed
4.Exit
Select:4
shuaib@shuaib-pc:~/Documents/ss/exp2$
```