Government Engineering College, Thrissur
CS331 – System Software Lab
Documentation -
Exp2 – File Allocation Stratergy

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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 18.04 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

```
---------------Menu---------------
1.Sequential
2.Linked
3.Indexed
4.Exit
Select:1

Sequential Allocation
```

Output of each menu item

1. Sequential Allocation Strategy

Input

```
Sequential Allocation
Enter the number of blocks: 10
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
-----------------------------------------------------------
        9                        Free
-----------------------------------------------------------
        10                       Free
-----------------------------------------------------------
```

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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
```