CSE 312
OPERATING SYSTEMS

HOMEWORK 01

README REPORT

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1. Program is going to compile and run with these commands for first strategy kernel:
   sudo make install
   ./spim -file SPIMOS_GTU_1.s

2. Program is going to compile and run with these commands for second strategy kernel:
   sudo make install
   ./spim -file SPIMOS_GTU_2.s

3. Program is going to compile and run with these commands for third strategy kernel:
   sudo make install
   ./spim -file SPIMOS_GTU_3.s

Important Notes:

- Before for each compile and run you must use **sudo make clean** command to run a clear code.
- There is some problem with SPIM that interrupts too fast and doesn't allow to continue the kernel assemblies. It will be showed you in test results.
- All assembly files must be in **spim** directory.
- All kernel strategies are working fine.
- Each assembly test files are working fine.
- Sometimes SPIM doesn't let the kernel run, always interrupts. That causes to segmentation fault or other error types. In that situations I would let you make clean, re-compile and re-run program.

How Algorithm Works?

In that program, when the kernel program run for example first strategy loads three test files into memory using system call and program backs to kernel. Then starts to load registers and runs the test files in ordered.

If interrupt becomes then it saves address space of test file and continues on kernel's next instruction. For each interrupt all these loading and storing jobs become. And these works until all test files finishes their jobs. After all finished job program terminates itself.

TEST RESULTS:

SPIMOS_GTU_1.s Results

```
omer@omer:~/Desktop/HW02/HW02/spimsimulator-code-r730/spim$ ./spim -file SPIMOS_GTU_1.s
Loaded: /usr/share/spim/exceptions.s
LinearSearch.asm:
Array : {10, 20, 80, 30, 60, 50, 110, 100, 130, 170}
Enter a number to search: 10

! INTERRUPT !

Collatz.asm:
Enter the Collatz number : 7

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 44

! INTERRUPT !

LinearSearch.asm found index at : 0

! INTERRUPT !

7 : 22 11 34 17 52 26 13
! INTERRUPT !


! INTERRUPT !


! INTERRUPT !

BinarySearch.asm returns -1

! INTERRUPT !


! INTERRUPT !

40 20 10 5 16 8 4 2 1
```

SPIMOS_GTU_2.s Results

```
omer@omer:~/Desktop/HW02/HW02/spimsimulator-code-r730/spim$ ./spim -file SPIMOS_GTU_2.s
Loaded: /usr/share/spim/exceptions.s
BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 10

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 20

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 30

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 40

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 50

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 60

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 70
```

```
BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 70

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 80

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 90

! INTERRUPT !

BinarySearch.asm:
Array : {10, 20, 30, 50, 60, 80, 100, 110, 130, 170}
Enter a number to search: 100

! INTERRUPT !

BinarySearch.asm found index at : 0

! INTERRUPT !

BinarySearch.asm found index at : 1

! INTERRUPT !


! INTERRUPT !

BinarySearch.asm found index at : 3
BinarySearch.asm found index at : 4

! INTERRUPT !


! INTERRUPT !
```

```
BinarySearch.asm found index at : 3
BinarySearch.asm found index at : 4

! INTERRUPT !


! INTERRUPT !

BinarySearch.asm found index at : 5

! INTERRUPT !


! INTERRUPT !

BinarySearch.asm found index at : 6

! INTERRUPT !


! INTERRUPT !

BinarySearch.asm returns -1

! INTERRUPT !

BinarySearch.asm returns -1

! INTERRUPT !


! INTERRUPT !

BinarySearch.asm returns -1

! INTERRUPT !


! INTERRUPT !
```

```
! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

BinarySearch.asm returns -1
omer@omer:~/Desktop/HW02/HW02/spimsimulator-code-r730/spim$ _
```

SPIMOS_GTU_3.s Results

```
omer@omer:~/Desktop/HW02/HW02/spimsimulator-code-r730/spim$ ./spim -file SPIMOS_GTU_3.s
Loaded: /usr/share/spim/exceptions.s
LinearSearch.asm:
Array : {10, 20, 80, 30, 60, 50, 110, 100, 130, 170}
Enter a number to search: 10

! INTERRUPT !

LinearSearch.asm:
Array : {10, 20, 80, 30, 60, 50, 110, 100, 130, 170}
Enter a number to search: 20

! INTERRUPT !

LinearSearch.asm:
Array : {10, 20, 80, 30, 60, 50, 110, 100, 130, 170}
Enter a number to search: 30

! INTERRUPT !

Collatz.asm:
Enter the Collatz number : 3

! INTERRUPT !

Collatz.asm:
Enter the Collatz number : 2

! INTERRUPT !

Collatz.asm:
Enter the Collatz number : 1

! INTERRUPT !

LinearSearch.asm found index at : 0

! INTERRUPT !

LinearSearch.asm found index at : 1

! INTERRUPT !
```

```
LinearSearch.asm found index at : 1

! INTERRUPT !

LinearSearch.asm found index at : 3

! INTERRUPT !

3 : 10 5 16
! INTERRUPT !

2 : 1

! INTERRUPT !


! INTERRUPT !


! INTERRUPT !

1 :

! INTERRUPT !


! INTERRUPT !


! INTERRUPT !

4 2 1

! INTERRUPT !


! INTERRUPT !


! INTERRUPT !

LinearSearch.asm
```

```
! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

! INTERRUPT !

omer@omer:~/Desktop/HW02/HW02/spimsimulator-code-r730/spim$ _
```