

## Operating System Project Phase 2

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#### 1. Overview

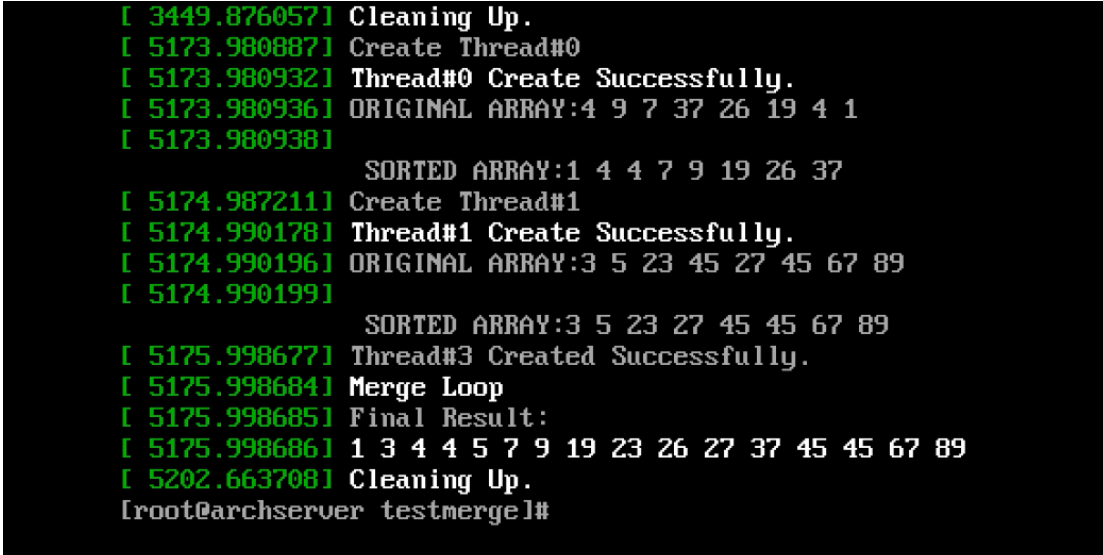
This phase of project requires us 1) to create a kernel in archlinux operating system.  
2) to run the multi-threaded sorting program in kernel.

#### 2. Program Structure

The code structure of this phase is similar with Phase 1. The biggest difference is that since `<pthread.h>` cannot be used in the kernel mode, we use `<linux/kthread.h>` instead. Other changes are made according to the library.

#### 3. Test Result

The test run result is shown in the screenshot below:



```
[ 3449.876057] Cleaning Up.  
[ 5173.980887] Create Thread#0  
[ 5173.980932] Thread#0 Create Successfully.  
[ 5173.980936] ORIGINAL ARRAY:4 9 7 37 26 19 4 1  
[ 5173.980938]          SORTED ARRAY:1 4 4 7 9 19 26 37  
[ 5174.987211] Create Thread#1  
[ 5174.990178] Thread#1 Create Successfully.  
[ 5174.990196] ORIGINAL ARRAY:3 5 23 45 27 45 67 89  
[ 5174.990199]          SORTED ARRAY:3 5 23 27 45 45 67 89  
[ 5175.998677] Thread#3 Created Successfully.  
[ 5175.998684] Merge Loop  
[ 5175.998685] Final Result:  
[ 5175.998686] 1 3 4 4 5 7 9 19 23 26 27 37 45 45 67 89  
[ 5202.663708] Cleaning Up.  
[root@archserver testmerge]#
```

The Youtube link of the demo is: [https://youtu.be/92\\_QH\\_nIDho](https://youtu.be/92_QH_nIDho).