

# 1 Process

## Vocabularies

### 1. Process

- Is a program in execution

### 2. Running Program

- Is a collection of coded software instructions that can be executed by a computer to perform a specific task

### 3. Time Sharing

- Is a basic technique used by an OS to share a resource
- Allows an entity to use the resource for a little while, and then a little while by another, and so forth

#### Example

CPU

### 4. Space Sharing

- Is where a resource (space) is divided among those who wishes to use it

#### Example

Disk, and Memory

### 5. Mechanism

- Is a low-level method or protocol that implement a needed piece of functionality.

#### Example

Context Switching

### 6. Policy

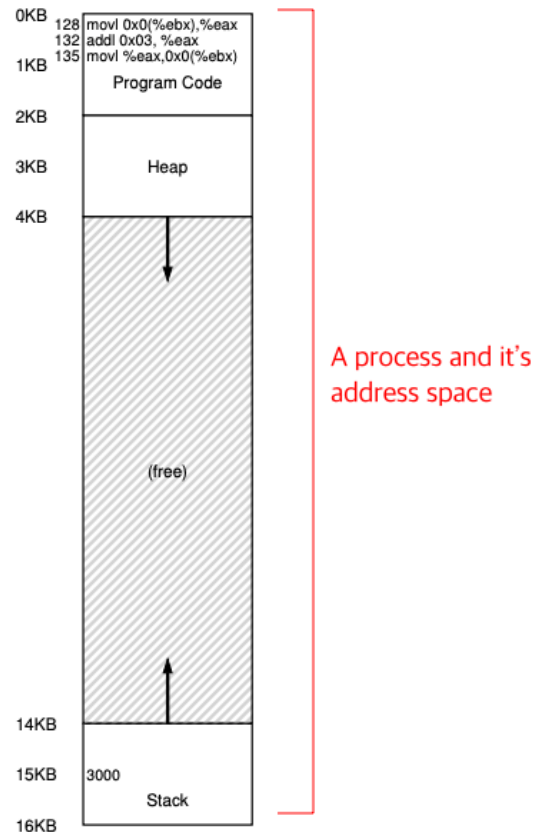
- Is an algorithm for making some kinds of decision within the OS

#### Example

Scheduling Policy. That is, what kind of program should the OS run?

## 7. Address Space

- Is a range of discrete addresses where each corresponds to a memory cell

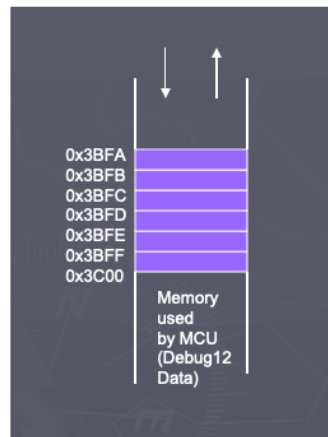


## 8. Program Counter

- Is also called **Instruction Pointer**
- Is a process register that tells which instruction of the program is currently being executed

## 9. Stack Pointer

- Is a register that points to the location of last item placed in memory block



### 10. Frame Pointer

- Is a reference pointer allowing a debugger to know where local variable or an argument is at with a single constant offset

```
4.c:7:6: note: expected 'struct abc *' but argument is of type 'struct abc *'
void count_length(struct abc *_el);
```

↑  
Frame Pointer

### 11. Eager Loading Process

- Is the process that loads all code and data before running the program

### 12. Lazy Loading Process

- Is the process that loads piece of code or data only as they are needed during program execution

### 13. Stack

- Is also called **runtime stack**, **automatic memory**
- Is a special region in computer's memory that temporarily stores local variables, function parameters, and return addresses
- Is managed by compiler

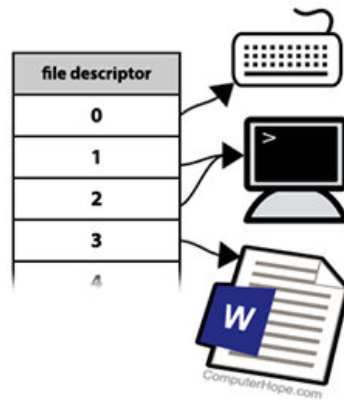
### 14. Heap

- Is a user-managed region in computer memory
- Is used for dynamically-allocated data structures such as linked list, hash-tables, and trees

- Is allocated using `malloc`, `calloc`, and `realloc`

## 15. File Descriptors

- Is a number that uniquely identifies an open file in a computer's operating system



## 16. Process States

- Is also called **kernel state**
- Is the state field in a process.

### Example

Ready, Running, Blocked

## 17. Process List

- Is also called **task list**
- Contains information about all the processes running in the system
- Contains **process control block** in each entry

## 18. Context Switch

## 19. Process Control Block

## 20. Zombie State