



Source: <https://www.geeksforgeeks.org/program-best-fit-algorithm-memory-management/>

3<sup>rd</sup> Mandatory Assignment

*Operating Systems(62588) Lecture 8*

**Teacher:** Bhupjit Singh

**Updated on Date:** 03/11/2019

**To be handed in individually on DTU inside by 23:59, Tuesday the 19<sup>th</sup> of November 2019**

## Overview & Purpose

- 1) Complete the provide solution by implement four strategies for selecting in which block to place a new requested memory block namely
  - a) First-fit: select the first suitable block with smallest address.
  - b) Best-fit: select the smallest suitable block.
  - c) Worst-fit: select the largest suitable block.
  - d) Next-fit: select the first suitable block after the last block allocated (with wraparound from end to beginning).

---

## Features to learn

- 1) Memory Allocation strategies
- 2) Implement them in buddy system
- 3) Compare different strategies

## Tasks

1. Follow the README file [here](#).
2. Familiarize yourself with the provided assignment and the code
3. Implement the following
  - a. `initmem()`: Initialize memory structures.
  - b. `mymalloc()`: Like `malloc()`, this allocates a new block of memory.
  - c. `myfree()`: Like `free()`, this deallocates a block of memory.
  - d. `mem_holes()`: How many free blocks are in memory?
  - e. `mem_allocated()`: How much memory is currently allocated?
  - f. `mem_free()`: How much memory is NOT allocated?
  - g. `mem_largest_free()`: How large is the largest free block?
  - h. `mem_small_free()`: How many small unallocated blocks are currently in memory?
  - i. `mem_is_alloc()`: Is a particular byte allocated or not?
4. You are not suppose to implement `malloc()` or `free()`, you can use/call them inside your `mymalloc()` and `myfree()` function. You just have to implement the different strategies such that when you call `malloc()` with that strategy it allocates the memory with that strategy. You are only supposed to implement one of the strategies(this is to be done alone yourself). To see which strategy should you implement find out [here](#).
5. You will then give peer feedback to 3 students who have implemented the other three strategies. You will be assigned the 3 members in a group and you will have to sit together and combine your code to submit the questions 1 to 10 from the README.txt

