**CS201 GDB Spring 2021**

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**Question Title: *Memory Allocation Techniques.***

**Question Description: *GDB Statement.***

Suppose you are working as a software engineer for automobile industry. Automobile industry is about to build some new automated machines for its assembly line. These machines will be using an OS without any file system. These machines will be doing fixed number of movements in loop at assembly line and there will be no other use of these machines. Execution of every move should be as fast as hardware limitation allows.

**Solution:**

As we learned from **CS201 lecture 24 and 25**, about the difference between static memory allocation and dynamic memory allocation. There are many points which makes a huge difference between both the memory allocations.

In general, dynamic means **capable of action or change**, while static means **stationary or fixed**.

Static memory allocation is an allocation method which allocates a **fixed amount of memory** **during compile time** and the operating system (OS) internally uses a data structure known as **Stack** to manage this operation.

According to the question and as a Software Engineer for Automobile Industry, I will prefer the **static memory allocation** because the requirements mentioned in question are:

* The machines will be using an **OS without any file system**.
* The machines will be **doing fixed number of movements** in loop at assembly line and there will be **no other use of these machines**.
* Execution of every move should be as **fast as hardware limitation** allows.

**Conclusion:**

So, in my point of view as a software engineer, all the options which are required can be fulfilled by **using the static memory allocation** rather than dynamic memory allocation.

**Static memory allocation is best option for the given scenario.**