Requirements of memory management system

memory management keeps track of the status of each memory location, whether it is allowed or free. It allocates the memory dynamically to the programs at their request and free. ~~It allocates the memory dy~~ it for reuse when it is no longer needed. Memory management meant to satisfy some requirements that we should keep in mind.

These Requirements of memory management are:

Relocation: The available memory is generally shared among a number of processes in a multiprogramming system so it is not possible to know in advance which other programs will be resident in main memory at the time of execution of this program. Swapping the active processes in and out of the main memory enables the operating system to have a larger pool of ready-to-execute process.
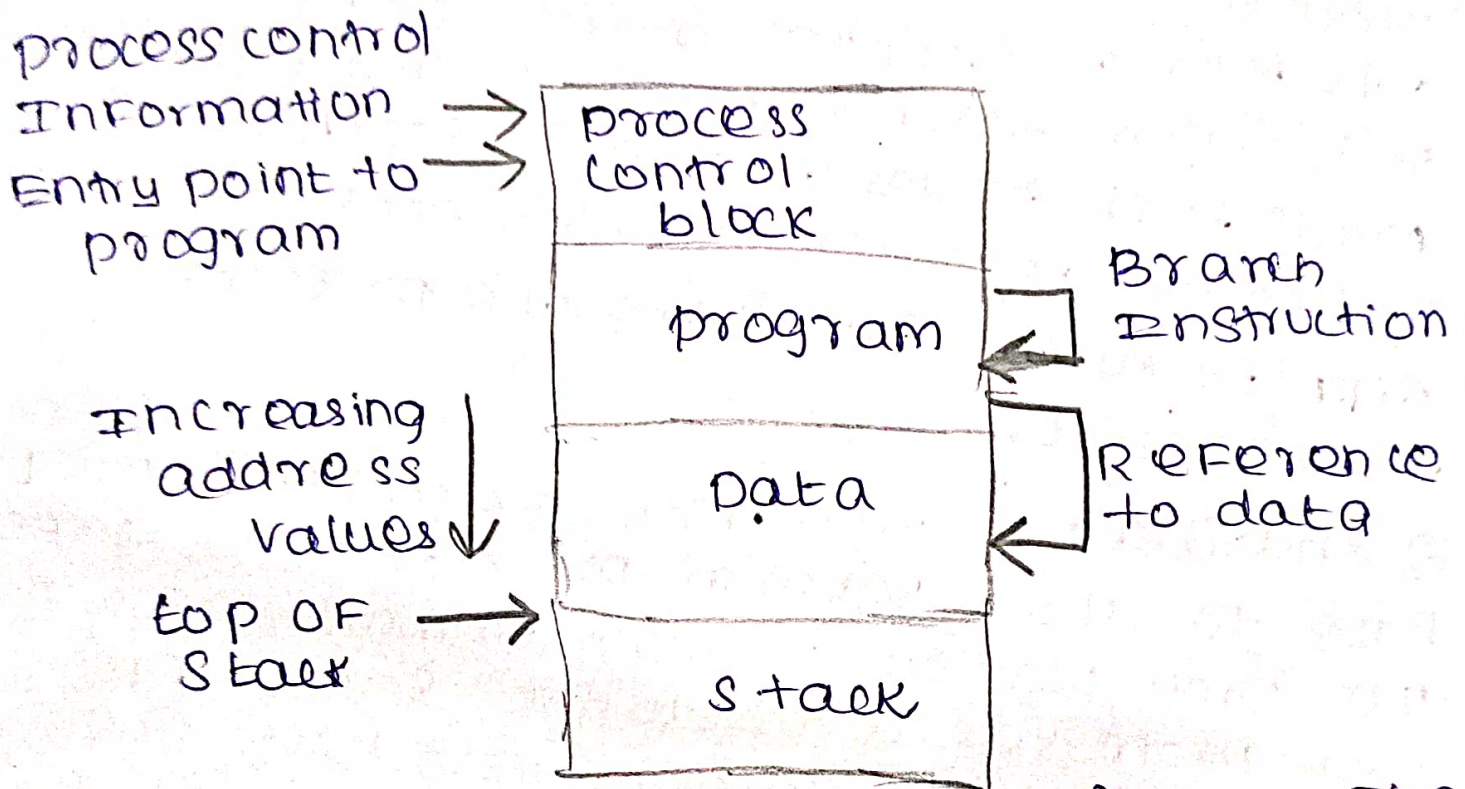
SNS COLLEGE OF ENGINEERING
Kurumbapalayam (Po), Coimbatore – 641 107
AN AUTONOMOUS INSTITUTION
Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

process control
Information
Entry point to
program

Increasing
address
values

top of
Stack

| process control block |
| program |
| Data |
| stack |

Branch
Instruction

Reference
to data

The figure depicts a process image. The
process image is occupying a continuous
region of main memory. the operating
system will need to know many things
including the location of process control
information the execution stack and the
code entry. within a program there are
memory reference in various instructions
and these are called logical address.

2) protection: There is always a danger when we have multiple programs at the same time as one program may write to the address space of another program. So every process must be protected against unwanted interference when other process tries to write in a process whether accidental or incidental. Between relocation and protection requirement a trade-off occurs as the satisfaction of relocation requirement increases the difficulty of satisfying the protection requirement.

3) sharing: A protection mechanism must have to allow several processes to access the same portion of main memory. Allowing each processes access to the same copy of the program rather than have their own separate copy has an advantage.

4) Logical organization: main memory is organized as Linear or it can be a one-dimensional address space which consists of a sequence of bytes or words. Most of the programs can be organized into modules, some of those are unmodifiable and some of those are th contain data that can be modified. To effectively deal with a user program, the operating system.

5) **Physical organization:** The Structure of computer memory has two levels referred to as main memory and secondary memory. main memory is relatively very fast and costly as compared to the secondary memory. main memory is violatile. Thus secondary memory is provided for storage of data on a long-term basis while the main memory holds currently used programs. The major system concern between main memory and secondary memory is the flow of information and it is impractical for programmers to understand this for two reason.