

## Activation Records :-

(12)

Procedure calls and returns are usually managed by a run-time stack called the control stack. Each live activation has an activation record (sometimes called a frame) on the control stack, with the root of the activation tree at the bottom, and the entire sequence of activation records on the stack corresponding to the path in the activation tree to the activation where control currently resides. The latter activation has its record at the top of the stack.

The contents of activation records vary with the language being implemented. Here is a list of the kinds of data that might appear in an activation record.

Actual parameters
Returned values
Control link
Access link
Saved machine status
Local data
Temporaries

A general activation record

- 1) Temporary values, such as those arising from the evaluation of expressions, in cases where those temporaries cannot be held in registers.
- 2) Local data belonging to the procedure whose activation record this is.
- 3) A saved machine status, with information about the state of the machine just before the call to the procedure. This information typically includes the return address and the contents of registers that were used by the calling procedure and that must be restored when the return occurs.
- 4) An "access link" may be needed to locate data needed by the called procedure but found elsewhere, eg. in another activation record.