Storage organisation

① Procedure
- declaration that associates an identifier with a statement

Activation tree
Root - main
functions are children

subdivision of Run time memory.

Compiler time → Code, static Data → memory locations for Code

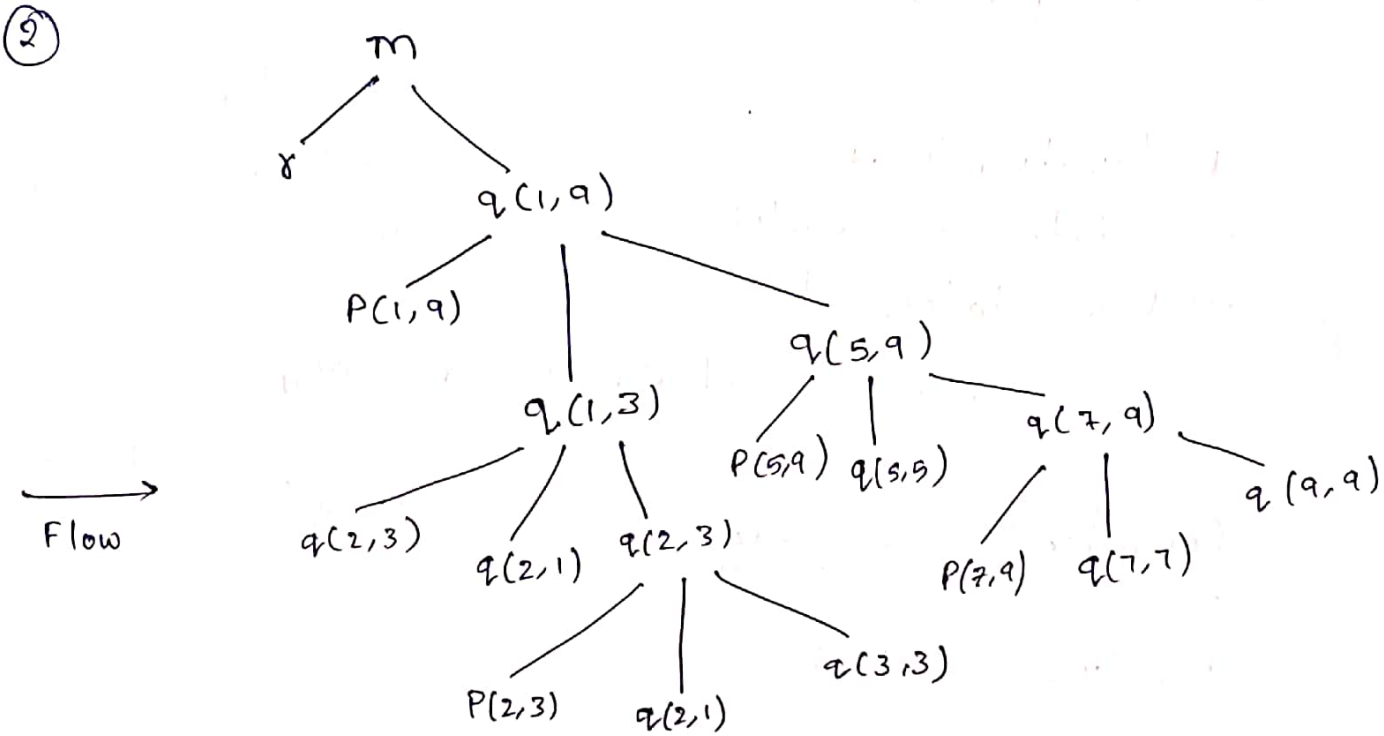
Run time → stack
↓
Free memory
↑
Run time Heap - ex - malloc

enter main()
enter read Array()
leave read Array()
enter qsort(1,9)
enter part(1,9)
leave part(1,9)
leave qsort(1,9)
leave main()

S. Vrsuraj Gupta

Scanned with CamScanner

(2)



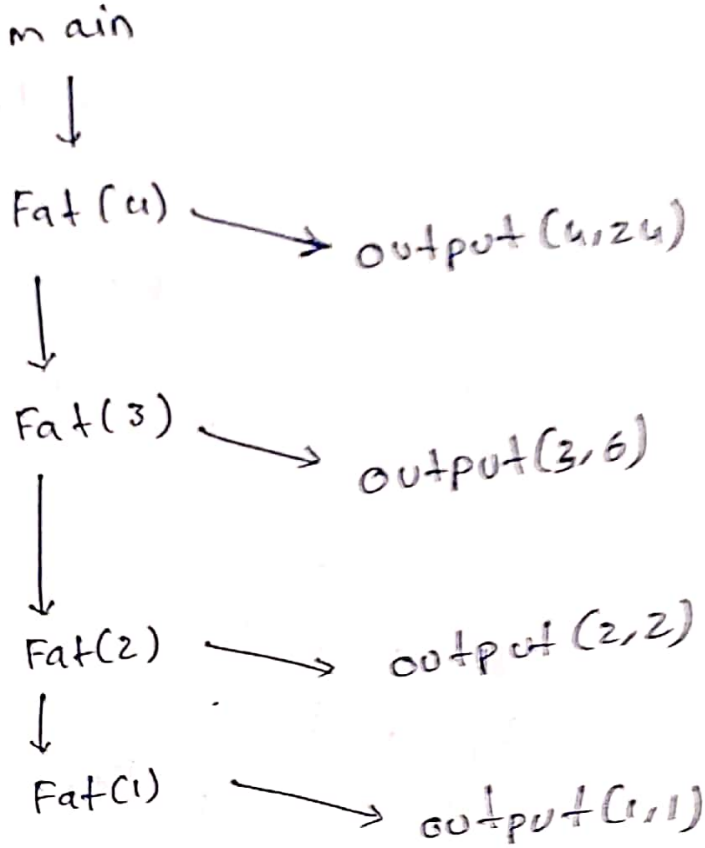
Example - Quick Sort Activation tree
↳ helps us to know which all function are active and also the control flow

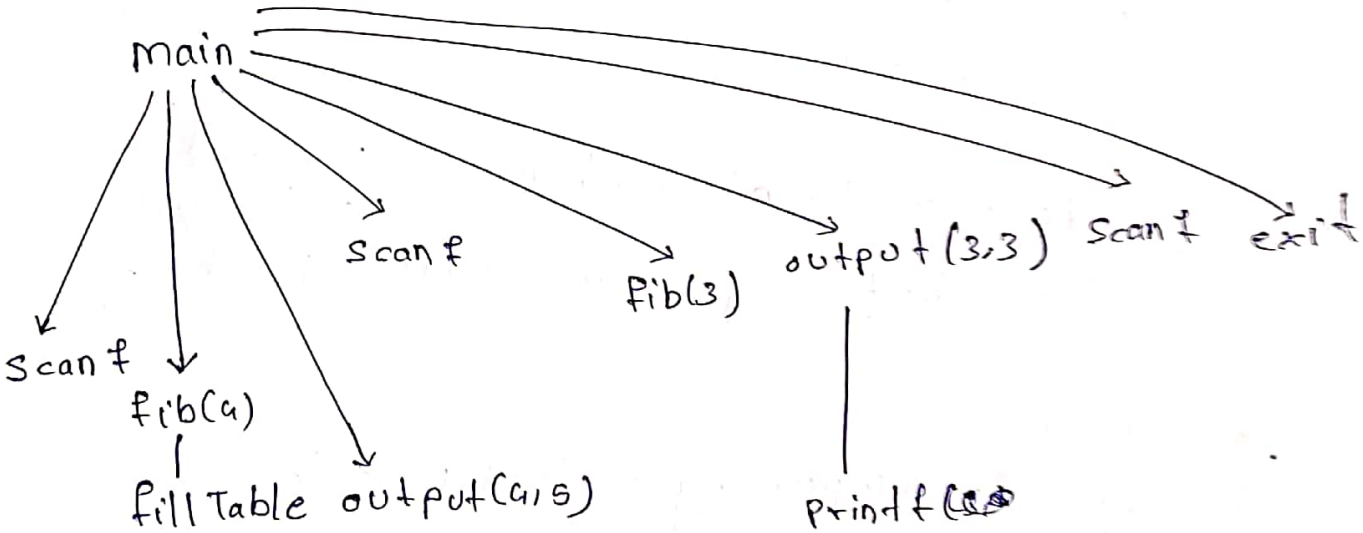
```
Void output (int n, int x){
  Printf ("The value of %d! is %d \n", n, x);
}
int fat (int n){
  int x;
  if (n > 1)
    x = n * fat (n-1);
  else
    x = 1;
  output (n, x);
  return x;
}
void main(){
  fat (4);
}
```

Shivraj gupta

(3)

Activation tree Fat(4)





S.V. Sunil Gupta

Scanned with CamScanner

(4)

Control stack

→ keep tack of live Procedure activations

→ flow of Costract in program corresponds to DF depth

first traversal of Act. tree

Push - activation begins

Pop - when act. ends.

Activation record

Control link - pointer that points to activation record of caller

access link - Points to non local data

emayer in other act record.

Actual Parameterm

Return value

Control link

Access link

saved Machine statues

Local data

Temporaries

SMS - holds into about machine status before procedure call

returned value - value to be returned

local data

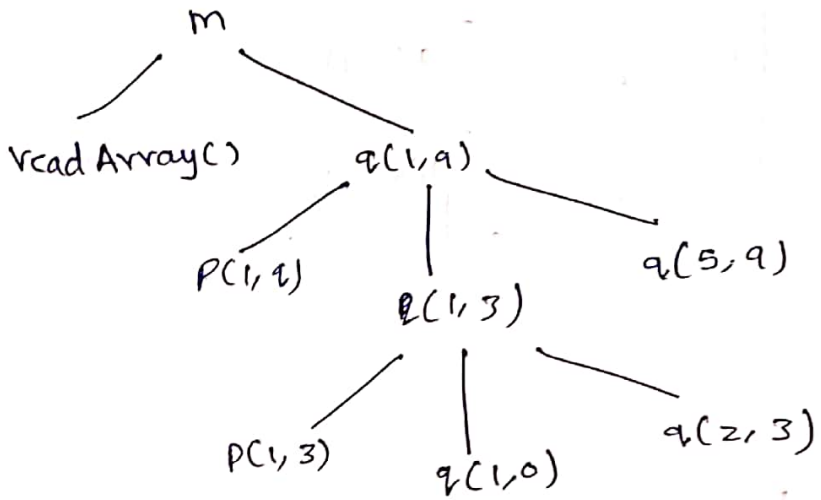
tempories - temporary values used in evaluation.

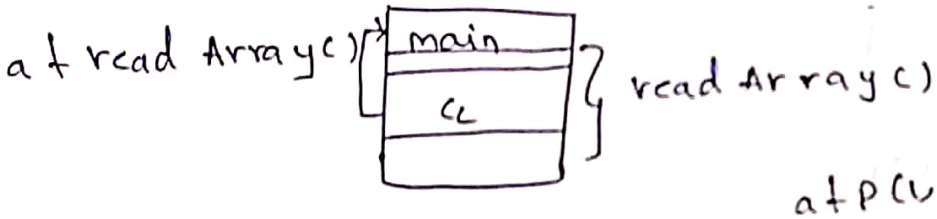
S. Insurai Gupta

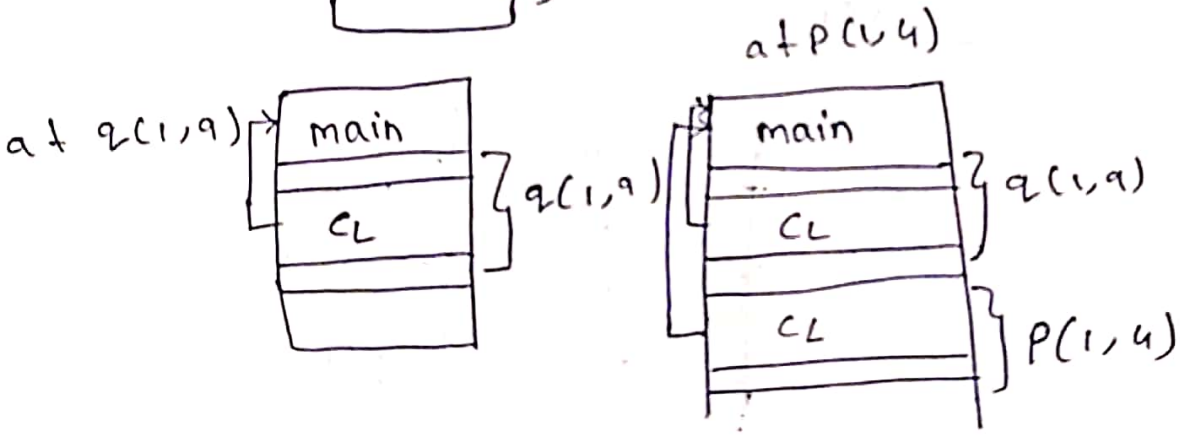
Dey.

Scanned with CamScanner

(5) Activation Record - Eql Quicksort

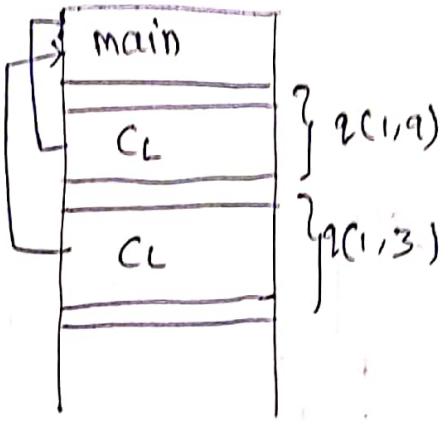


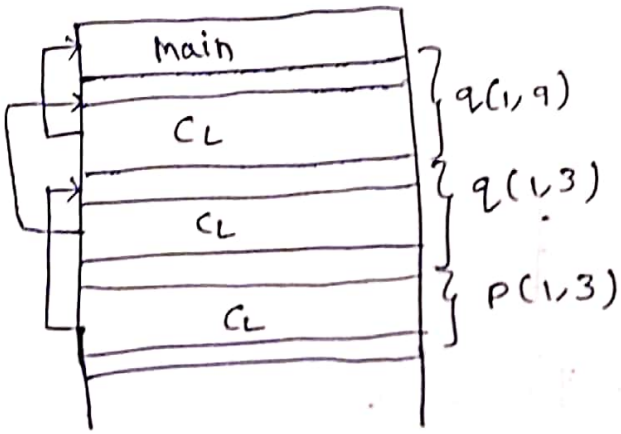




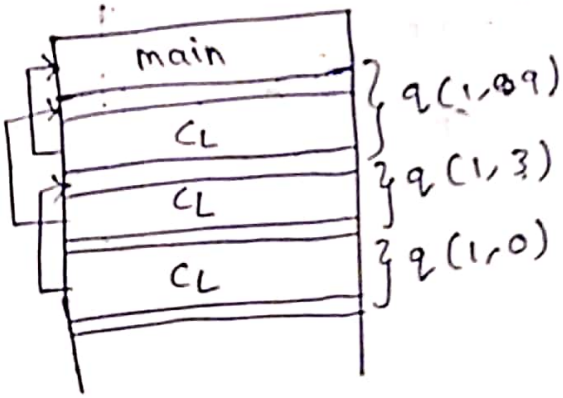
Scanned with CamScanner

⑥ at ~~p~~q(1, 3)





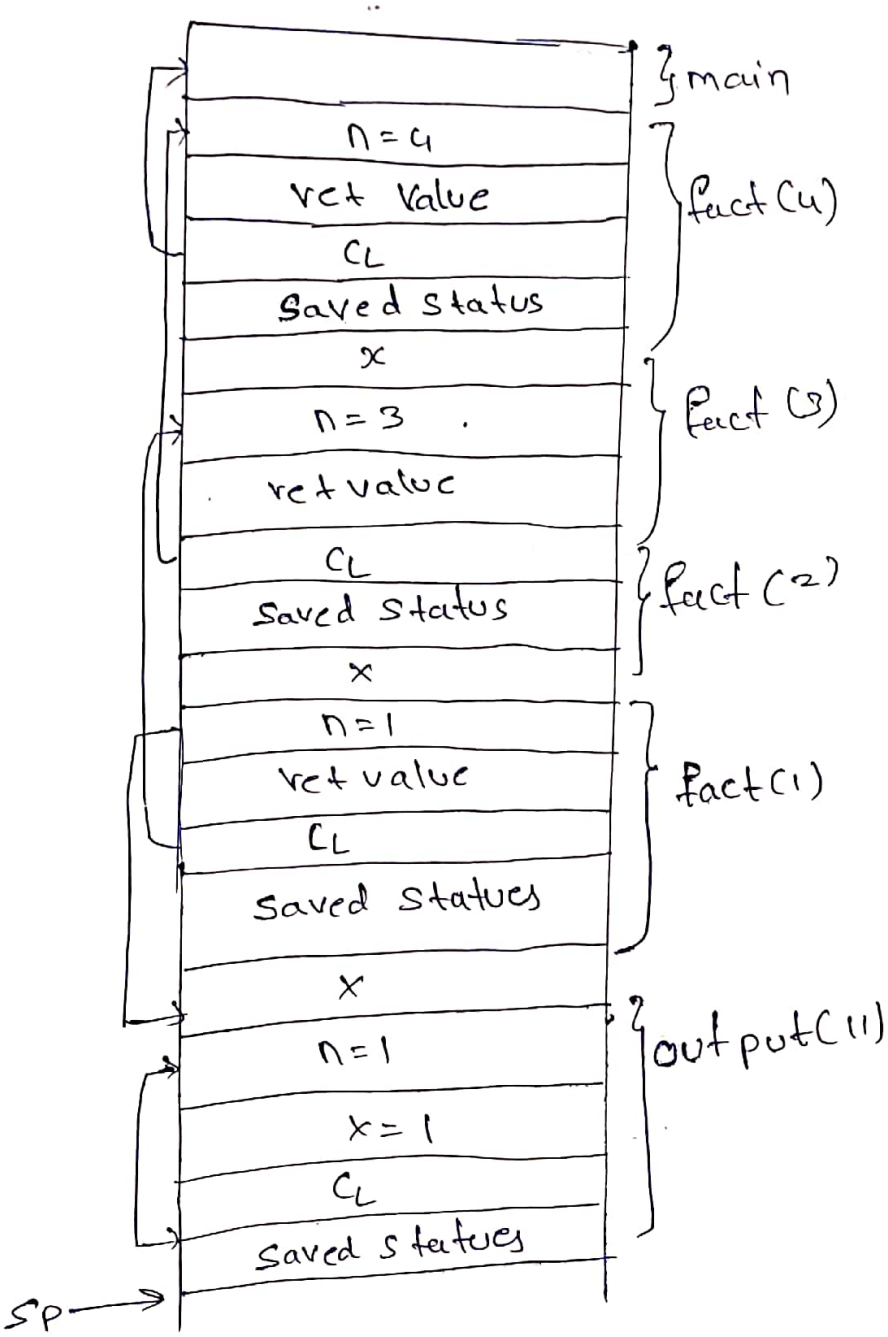
at q(1,0)



S.V. Saraj Gupta

(7)

Activation Record Eq 2



S.K. Sarajgupta

Scanned with CamScanner