Task Write a Python function: fast_copy(source, count) that:

● Allocates a destination structure large enough to hold count elements. ● Determines how many complete transfer groups of eight elements are required. ● Performs any necessary initial element transfers using structured control flow rather than iteration. ● Completes the remaining transfers in a repetitive block that assigns exactly eight elements per iteration. ● Returns the destination structure containing the copied elements.

Program:

```
def fastcopy(source, count):
  dest = [None] * count
    if count == 0:
  return dest
  src = 0
  dst = 0
  groups = count // 8
  remainder = count % 8
  state = "PARTIAL" if remainder > 0 else "FULL"
 if state == "PARTIAL":
   if remainder >= 1:
          dest[dst] = source[src]
          src += 1
          dst += 1
  if remainder >= 2:
          dest[dst] = source[src]
          src += 1
          dst += 1
  if remainder >= 3:
          dest[dst] = source[src]
          src += 1
          dst += 1
  if remainder >= 4:
          dest[dst] = source[src]
```

```
            src += 1
            dst += 1
    if remainder >= 5:
            dest[dst] = source[src]
            src += 1
            dst += 1
     if remainder >= 6:
            dest[dst] = source[src]
            src += 1
            dst += 1
    if remainder == 7:
            dest[dst] = source[src]
            src += 1
            dst += 1
   state = "FULL"
while groups > 0:
dest[dst] = source[src]
dest[dst + 1] = source[src + 1]
dest[dst + 2] = source[src + 2]
dest[dst + 3] = source[src + 3]
dest[dst + 4] = source[src + 4]
dest[dst + 5] = source[src + 5]
dest[dst + 6] = source[src + 6]
dest[dst + 7] = source[src + 7]
src += 8
dst += 8
groups -= 1
return dest
```

Description:

PARTIAL state – copies leftover elements (0–7)

FULL GROUP state – repeatedly copies 8 elements

1. Compute full groups and remainder
2. Enter PARTIAL state if remainder exists
3. Transition to FULL_GROUP state
4. Copy exactly 8 elements per iteration

Input

source = [1,2,3,4,5,6,7,8,9,10,11,12,13]

count = 13

Computation

groups = 13 // 8 = 1(Quotient value)

remainder = 13 % 8 = 5

Execution Flow

PARTIAL state copies first 5 elements

FULL state copies remaining 8 elements

Completed by,

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