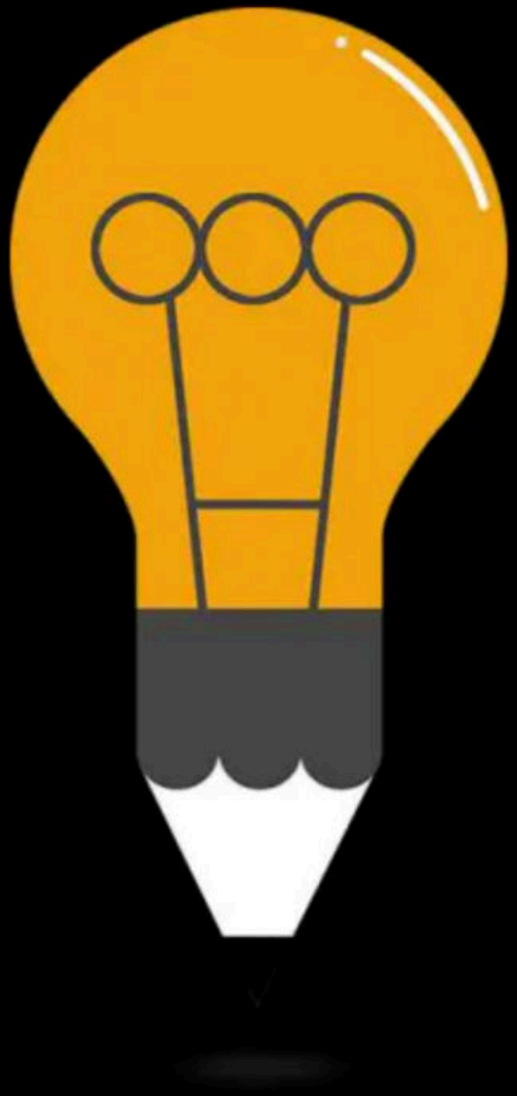
Doubt Clearing Session

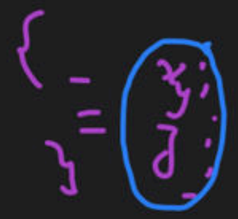
Course on C-Programming & Data Structures: GATE - 2024 & 2025

Vishvadeep Gothi • Lesson 13 • Dec 9, 2022



Doubts & Function

By: Vishvadeep Gothi



union test t1

Question

What is the output of the following programs-

```
for(int i=k, j=m; k<=n && j>=t; k++, j--)
{
}
```

k>n || j<t

Assume initially k<n and m>t.
When will the loop terminate?

(a) k<=n || j>=t
(b) k<=n && j>=t
(c) k>n || j<t
(d) k>n && j<t

Question

What is the output of the following programs-

```
void main(){
int i,j=1,count=0,n;
for(i=n;i>0;i/=2)
count=count+1;
while(j<n)
{
count--;
j*=2;
}
printf("%d",count);
}
```

n = 6

i = 6 3 1 0

count : 1 2 3 2 1 0

j = 1 2 4 8

0

Question

What is the output of the following programs-

```
void main(){
int i, j, count=0, n;
for(int i=1; i<n; i*=2){
 for(j=1; j<n; j*=2){
count++;
break;
}
}
do
{
Count--;
} while(0);
printf("%d,%d,%d",i, j, count);
}
```

n = 64

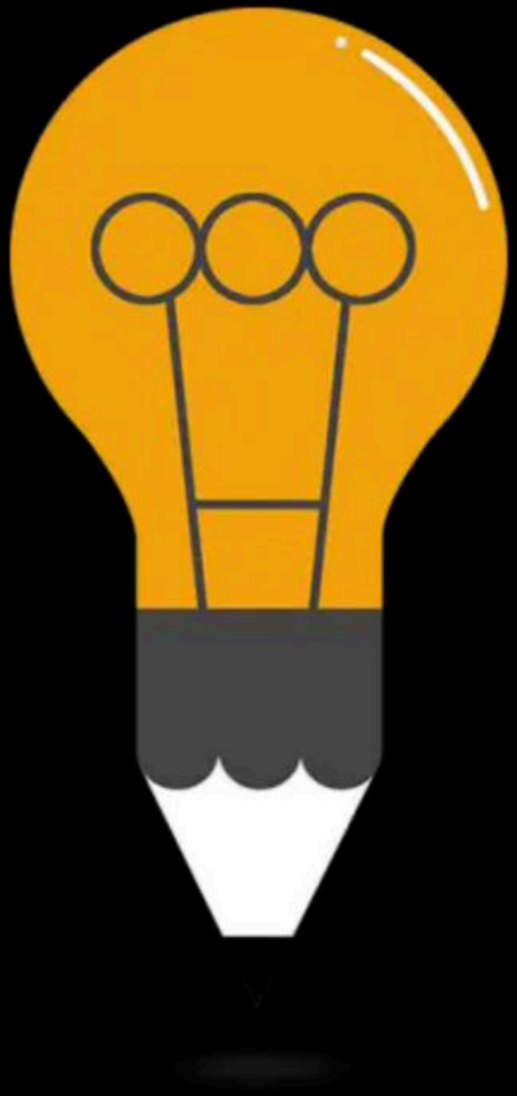
n = 64

i = 1 2 4 8 16 32 64

j = 1

Count = 1 2 3 4 5 6 5

64 1 5



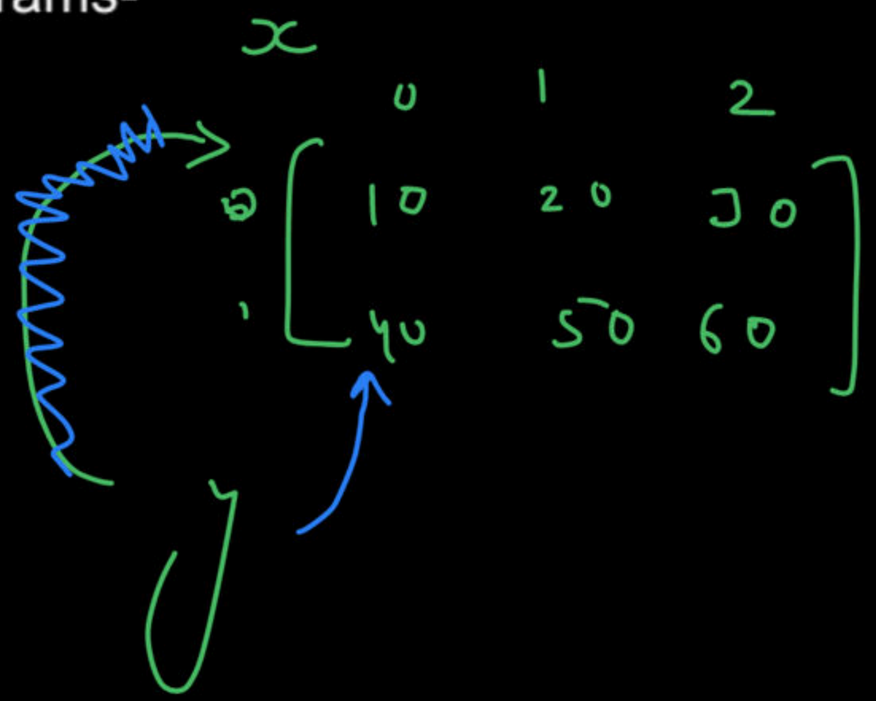
DPP 4

By: Vishvadeep Gothi

Question

What is the output of the following programs-

```
void main(){
int x[][3]={10,20,30,40,50,60};
int (*y)[3]=x;
printf("%d %d ",(*y)[1],(*y)[2]); 20 30
++y;
printf("%d %d",(*y)[1],(*y)[2]);50 60
}
```



Question

What is the output of the following programs-

```
void main(){
char *x[]={“GATE”,”EXAM”,”WORK”,”HARD”};
char **y[]={x+3,x+2,x+1,x};
char ***z=y;
void main(){
printf(“%s”,**++z);
printf(“%s”,*--*++z+3);
}
```

Question

What is the output of the following programs-

```
void main()
{
int x[2][3]={{1,2,3},{4,5,6}};
printf("%d",sizeof(x)/sizeof(int));
printf("%d",sizeof(x[0])/sizeof(int));
printf("%d",sizeof(x[0][2]);
}
```

12/2 = 6

6/2 = 3

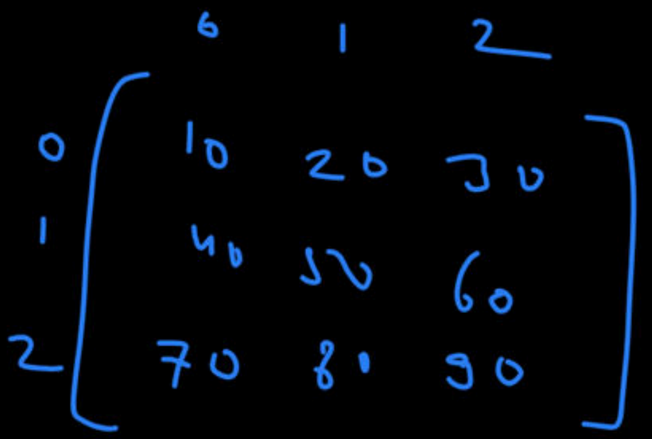
2

Question

What is the output of the following programs-

```
void main()
{
int a[][3]={10,20,30,40,50,60,70,80,90};
printf("%d,%d",1[a][2],*1[a]);
}
```

60 40



q[1]

Question

If A is one dimensional array, A[i] is evaluated as

(a) A+i
(b) *A
(c) *(A+i)
(d) *A+i
(e) None of the above

Question

If A is two-dimensional array, A[i][j] is evaluated as

(a) (A+i) + j

(b) (*A+i)+j

(c) (*(A+i)+j)

(d) *(*(A+i)+j)

(e) None of the above

Question

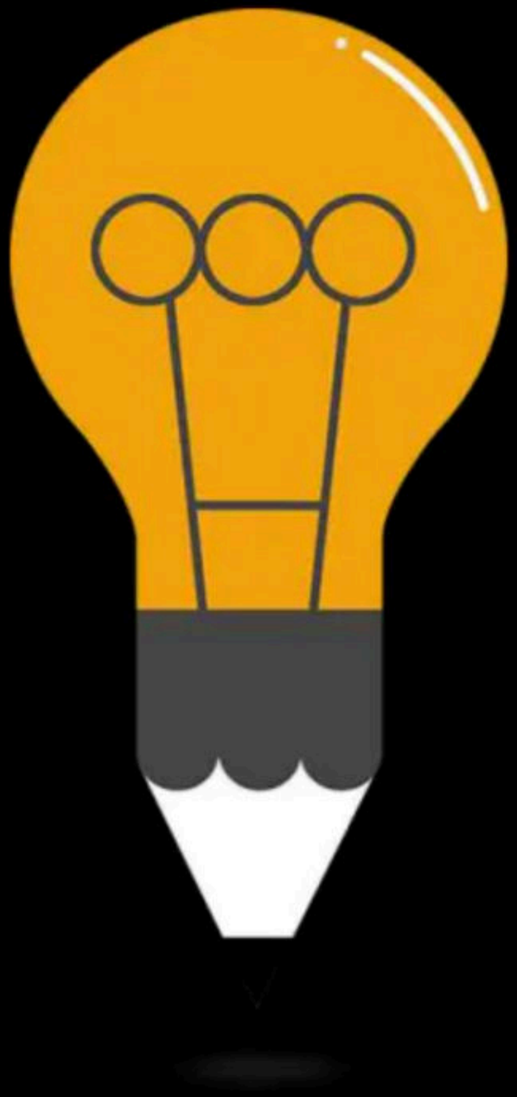
Which of the following is/are valid declarations?

a) int a[2][3]={1,2,3,4,5,6};
b) int a[2][3]={{1,2,3},{4,5,6}};
c) int a[][3]={{1,2,3},{4,5,6},{7,8,9}};
d) int a[2][]={{1,2,3},{4,5,6}};

multidimentional array :-

A[ ][size1][size2]

only can be skipped (first one)



DPP 5

By: Vishvadeep Gothi

Question

What is the output of the following programs-

```
int fun(int x,int y){
x=x + y;
y=x * y;
return (x, y);
}

int main(){
int x=4, y=8, z;
z=fun(x,y);
printf("%d", z);
}
```

int x = x 12
int y = 8 96

x = 4, y = 8, z = 96

Question

Ans = −10

What is the output of the following programs-

```
void main(){
int fun(int);
int count=0, i;
for(i=1;i<1024; i*=2)
        count++;
printf("%d",fun(count));
int fun(int count) { return –count; }
}
```

can't write function inside main

```
int fun(int count)
{
 return - count;
}
void main()
{
 int count=0, i;
for(i=1; i<1024; i*=2)
    count++;
printf("%d", fun(count));
}
```

count = 10

i = 1

Question

```
#include<stdio.h>
int fun(int);
int main(){
int a=fun(12);
printf("%d\n",--a);
return 0;
}
int fun (int x)
{ return x--; }
```

Ans = 11

a = 12

11

int x = 12 11

Question

What is the output of the following programs-

Ans ⇒ 1 0

```
#include<stdio.h>
int fun(int n){
printf("%d", n--);
exit(0);
}

int main(){
int x=10;
fun(x);
printf("%d",x);
}
```

int n = x 10 9

10

x = 10

Question

What does the following function return when called for fun(511, 512)

```
int fun(int x,int y){
while(x!=y){
if(x>y) x=x-y;
else y=y-x;
}
return x;
}
```

Ans = 1

x = ~~511~~ ~~510~~ ~~509~~ ~~508~~ ~~507~~ 1

y = ~~512~~ 1

fun(18, 24) ⇒ x = ~~18~~ ~~12~~ 6, y = ~~24~~ 6

⇓

return 6

fun (10, 30) ⇒ x = 10, y = ~~30~~ ~~20~~ 10

⇓

return 10

Question

What is the output of the following programs-

Ans = 23

```
#include<stdio.h>
int fun(int x)
{ return ++x; }

int main(){
int a=20;
a=fun(a=fun(a=fun(a)));
printf("%d", a);
return 0;
}
```

x = 22 23

a = 21 22 23

Ans = 1

Question

What does the following function return when called for fun(1, 511)

```
int fun(int a, int b){
int z=1;
while(b>0){
if(b&1) z=z*a;
b=b>>1;
a=a*a;
}
return z;
}
```

a = 1
b = 511
z = 1

Recursion

Question

```
void fun(int x){
  if(x>0)
  {
      printf("%d",x);
      fun(x-1);
  }}
void main() {
  fun(3);
}
```

Question

```
void Head(int x){
  if(x>0)
  {
      Head(x-1);
      printf("%d",x);
      Head(x-1);
  }}
void main() {
  Head(3);
}
```

Question

```
void sample(char *s) {
    if(*s!=NULL)
    {
        sample(s+1);
        sample(s+1);
        printf("%c",*s);
    }}
void main() {
    sample("abc");
}
```

Question

```
int X(int N)
{
   if (N<3)
       return(1);
    else
       return X(N-1) + X(N-3) +1
}
```

Return value of X(5) is?

Happy Learning.!

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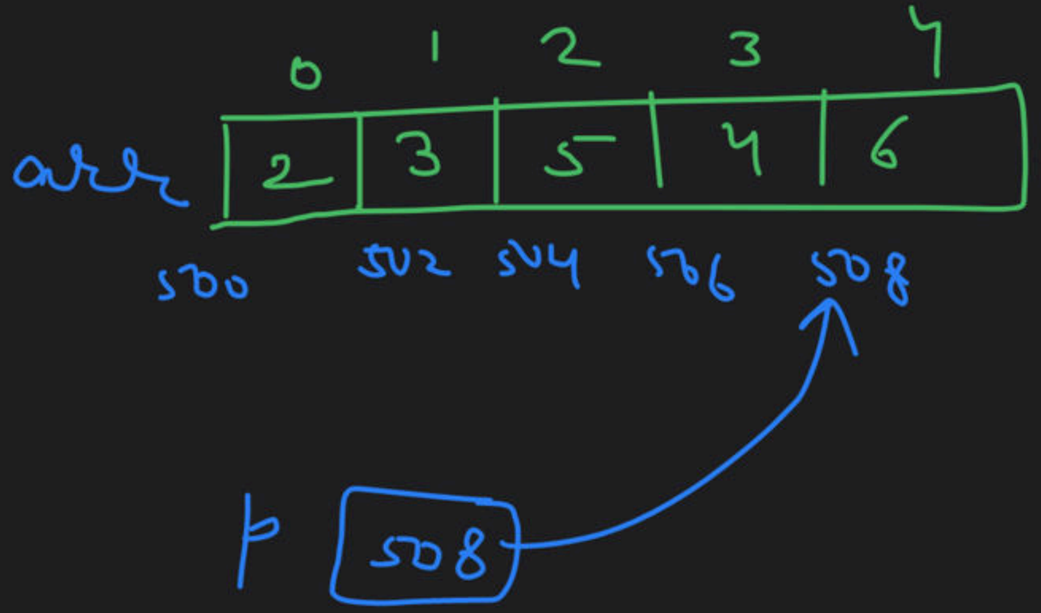
▲ 2 • Asked by Shreya

```
int main()
{
 int i, arr[5] = {2, 3, 5, 4, 6};
 p = &arr[4];
 for(i=0; i<5; i++)
 printf("%d\t%d\t", *(p-i), p[-i]);
}
```

6 6
4 4



i = 1

*(p + (-i))

p[i] *(p + i)

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▲ 1 • Asked by Shreya

```
#include <stdio.h>

int main()
{
    int a = 10, b = 20;
    unsigned int c = 0;
    int x = (b-a > c ? printf("%d", b):printf("%d", a));
    return 0;
}
```

a = 10

b = 20

c = 0

20