CS & IT ENGINEERING

Data Structure & Programming

1500 Series

Lecture No.- 02

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Recap of Previous Lecture

Topic Problem Practice Part-01

Topics to be Covered

Topic Problem Practice Part-02

[MCQ]

#Q. Consider the following code

```
main ( ) {
    int * p = (int *) 0;
        *p = 10;
    print ("%d", *P);
}
```

NULL

What is the output of the program ?

A Uninitialized pointer

B Segmentation fault

C 10

D Garbage value

[MSQ]

#Q. Consider a doubly linked list, which has front pointer which of the following operations depend on the size of the list.

A. Searching an element

B. Inserting element at front

C. Inserting element at last

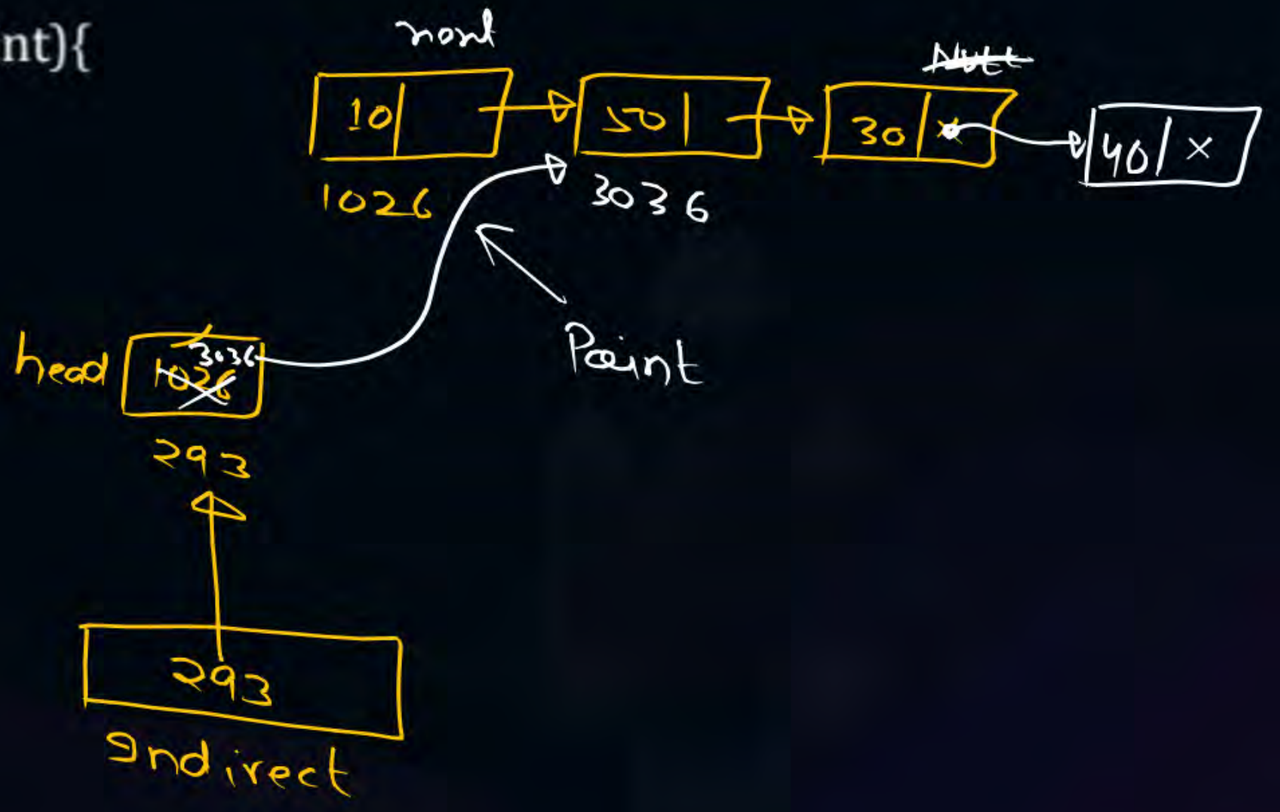
D. Deletion element at front.

[MCQ]

#Q. Consider a function that works on a single linked list. Consider head being the pointer pointing first node of list. (Assume LL is not Empty)

```
typedef struct node Node;
void function (Node* head, Node* point){
Node** indirect = & head;
while ((*indirect)!= point)
Indirect = & (*indirect) →next;
*indirect = point →next;
}
```

What does this function do?



A Swap head and point nodes

B Delete all the nodes from head to point ✓

C Delete the node which is pointed by point

D Segmentation fault.

[MCQ]

#Q. Consider all the required libraries are included and struct node is defined properly.

```
typedef struct Node Node;
void insert (Node*head, Node *last, int data){
Node*node= (Node*) malloc (size of (node));
If (head = = null){
        head = node;
        last = node;
        head →data = data;
        head →next = Null;
}
last →next = node;
last = node;
last → data = data;
last →next = Null;
}
    main ( ) { head
      Node*had = Null, *last = Null;
      insert (head, last, 5);
      printf ("%d", head→ data);
}
```

local var

NULL → data

A. Null

B. Garbage value

C. 5

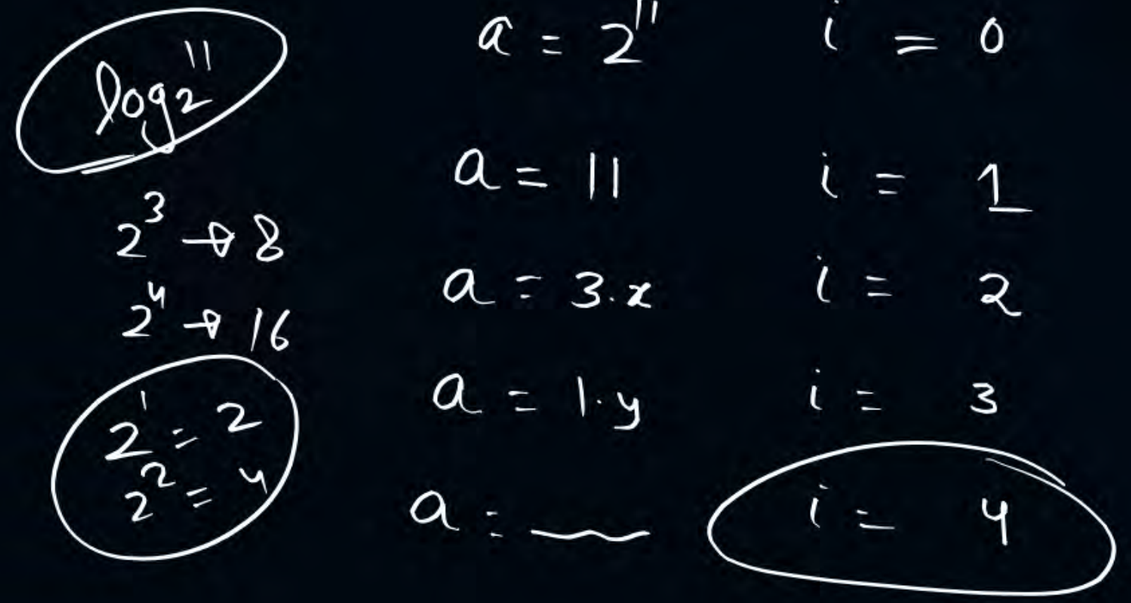
D. Segmentation fault.

[MCQ]

#Q. Consider the pseudocode

```
a = 2048
i = 0
while (a ≥1) {
a = log2 a;
i = i + 1;
}
```

at the end of the code what is the value of i.



A 10

B 4

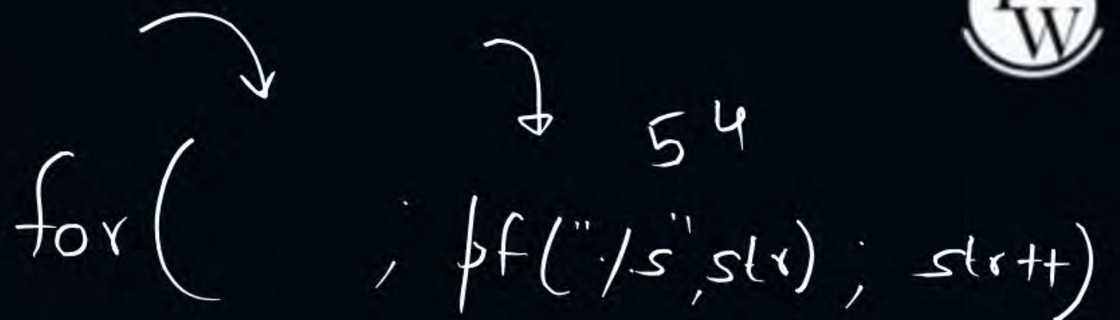
C 11

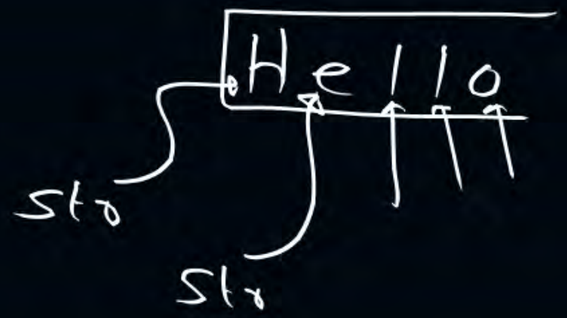
D 3

[MCQ]

#Q. What is the output of following code segment

```
char *str = "Hello\0";
for (; printf("%s", str); (str ++));
```





Helloellollloloo

A nothing

B Helloellolloloo

C Infinite loop

D Hello

[NAT]

#Q. int fun (int x) {
if (x = =1)
return 1;
return (printf ("% d", x) & printf ("%d", fun (--x)));
}
What is the minimum positive value of x for which fun ( )
return '0' 10 .

2 digit ⇒ 2

pf("%d", fun(3))
1

~~pf("%d", 3) &~~

1 & pf("%d", fun(2))

~~pf("%d", 2) &~~

pf("%d", fun(1))

1 & 1 & ~~pf("%d", fun(1))~~

1 & 1 & 1

1

fun(9) ⇒ 1

fun(10)

⇒ 1 & ____ . . . . . .

⇒ pf("%d", 10) & pf("%d", ~~fun(9)~~)
1

pf("%d", 0) & 1

2 & 1 ⇒ 0010
0001
0000

0

[MCQ]

#Q.
```
int*fun (int x){
int y = x+ 10;
return  (&y);
}
void main ( ) {
int*x ;
x  =fun (10);
print f ("%d", *x);
}
```

What does the above code prints?

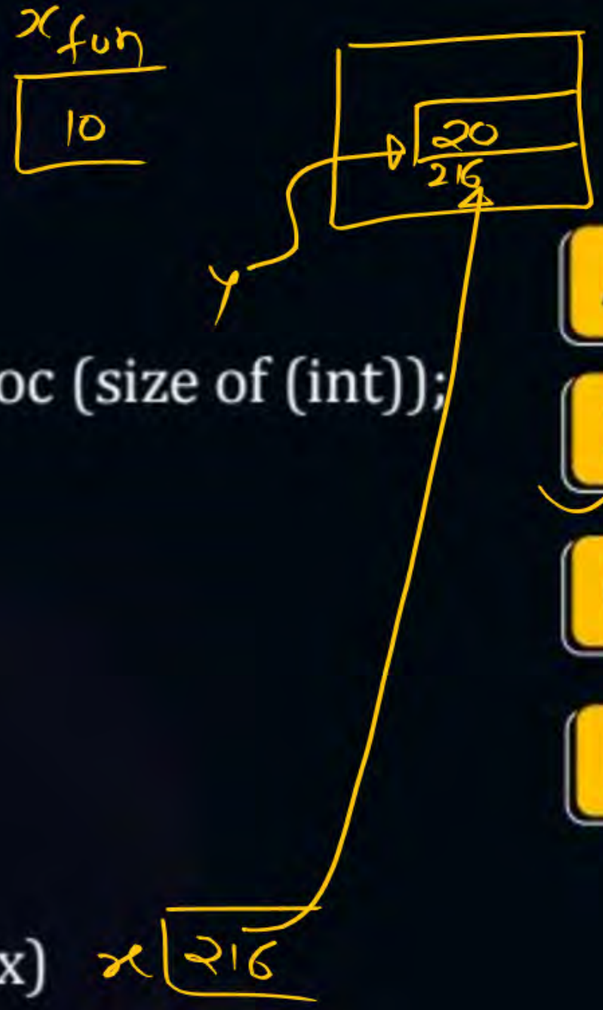
A 10

B 20

C 0

D Runtime error

[MCQ]



#Q.
```
int* fun (int x){
        int *y;
        y = (int*) malloc (size of (int));
        *y = x + 10;
        return y;
}
void main ( ) {
        int *x;
        x = fun (10);
        printf ("%d", *x)
}
```

What does above code prints?

A. Garbage value

B. 20

C. Compile error

D. Runtime error

[MSQ]

#Q. Which of the following will give error?

+
++

Token

+++

A x+++1 x+++1 ⇒ (x++)+ 1 ✓

B 1+++x 1+++x 1++ + x → Error ✓

C 1-++x 1-++x 1- (++x)

D --(++x) --(++x) ⇒ Error

[MCQ]

#Q.
```
int fun (int x ){
    if (x = = 1)
            return 1;
    elsei f (x % 2 = = 1)
            return (fun (x/2));
    else
            return (fun (x*2 +1));
    }
```
for which values the function will terminate ?

fun(6) ⇒ fun(13) ⇓ fun(6)

fun(0) ⇒ 1
fun(1) = 1

× fun(2) ⇒ fun(5) ⇒ fun(2) ⇓ fun(5)

fun(7) ⇒ fun(3) ⇒ fun(1) ⇒ 1

fun(3) ⇒ fun(1) ⇒ 1 ✓

× fun(4) ⇒ fun(9) ⇒ fun(4) ⇒ fun(9)

fun(5) ⇒ fun(2) ⇒ Non-term ×

{1, 3, 7}

A Only 1

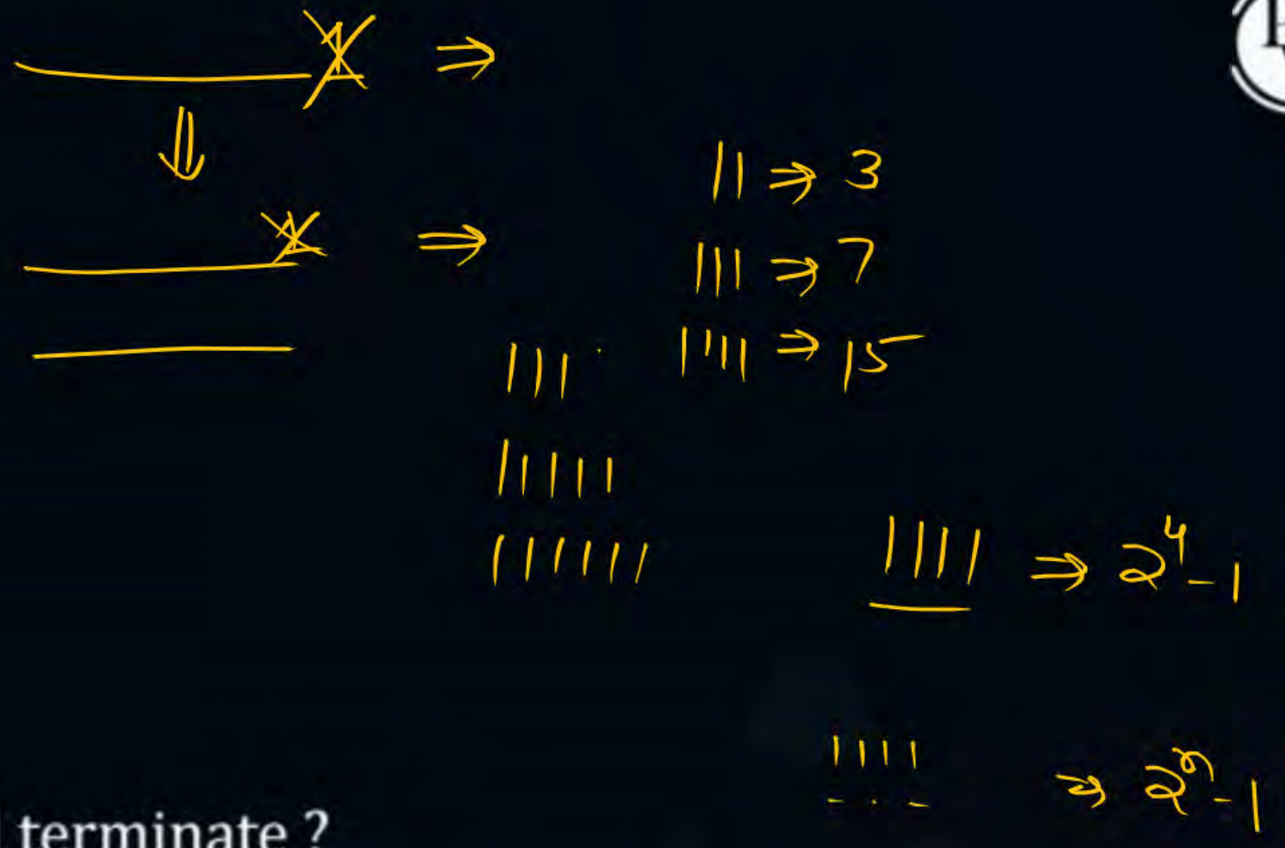
B $2^n - 1$ ..... $n \geq 0$

C Only 0 and 1

D $2^n - 1$ ..... $n \geq 0$ and its multiples

[MCQ]

#Q.
```
int fun (int x ){
    if (x = = 1)
        return 1;
    elsei f (x % 2 = = 1)
        return (fun (x/2));
    else
        return (fun (x*2 +1));
}
```
for which values the function will terminate ?



A. Only 1

B. $2^n - 1$ ..... $n \geq 0$

C. Only 0 and 1

D. $2^n - 1$ ..... $n \geq 0$ and its multiples

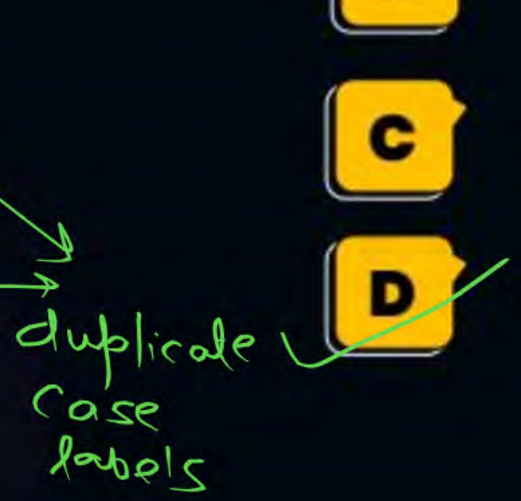
$\Rightarrow 2x$

$\Rightarrow 2x+1$

[MCQ]

#Q.
```
void main ( ) {
int i = 'a' ;
switch (i)
{
case 'a':
    printf ("hello") ;
case 97:
    printf ("world");
    break ;
default:
    print("nothing");
    }
}
```

What is the output of this code;



A. Hello world

B. world

C. Nothing

D. Compile error

[MCQ]

#Q. Consider the following code:

```
int i;
void main ( ) {
    for (i =0; i<10; i + +) {
    int i ;
    i = i –1;
    }
}
```

What is the result of above code?

A. Compile error: redeclaration of i

B. Code never terminate

C. For loop executed 10 times

D. Runtime error: declaration of i

[MCQ]

#Q. In a code, there is a for loop which increments by 2 at each iteration and iterator i, is initiated at 1. Here signed integer is used of size 2 bytes. For loop terminates when a number is traversed twice. How many times for loop is executed.

Class

A $2^{16}-1$

B $2^{15}+1$

C 2^{16}

D Infinite times

2 mins Summary

Topic One -

Topic Two -

Topic Three

Topic Four

Topic Five


Operators
Trees
Pointers
revise
THANK - YOU