Computer Science & IT

C Programming

String in C Programming

Lecture No. 01

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Recap of Previous Lecture

Topic 2-D array

Topic All Data type

Topic

Topic

Topic

Slide

Topics to be Covered

Topic — Array of characters

Topic — String

Topic

Topic

Topic

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Linke |

$$\text{List coding} \longrightarrow \left\{ \begin{array}{c} \text{Structure} \\ + \\ \text{Dynamic memory allocation} \end{array} \right\}$$

GATE 2015

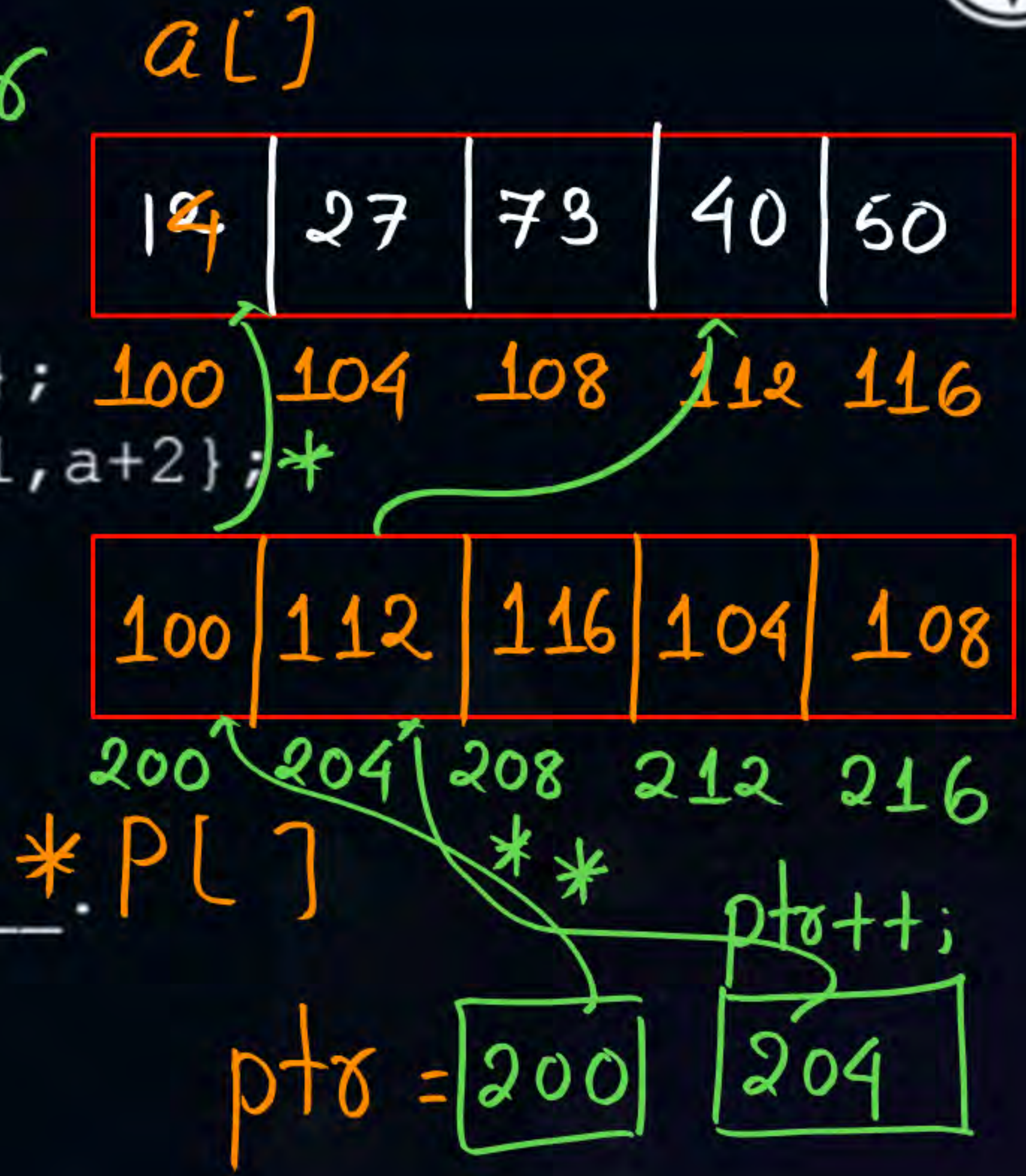
```
#include<stdio.h>
int main( ){
      static int a[] = {14,27,73,40,50};
      static int *p[] = {a, a+3,a+4,a+1,a+2};
      int**ptr=p;
      ptr++ ;
      printf ("%d%d", ptr-p, **ptr);
}
```

array of pointer

(204-200)

The output of the program is $\boxed{140}$ ________.

$$\frac{204-200}{4} = \frac{4}{4} = 1$$



String

String
Null character
Print string
Two ways to declaration of strin g
Array of string
How to print array of string
Array of string using character pointer

Slide

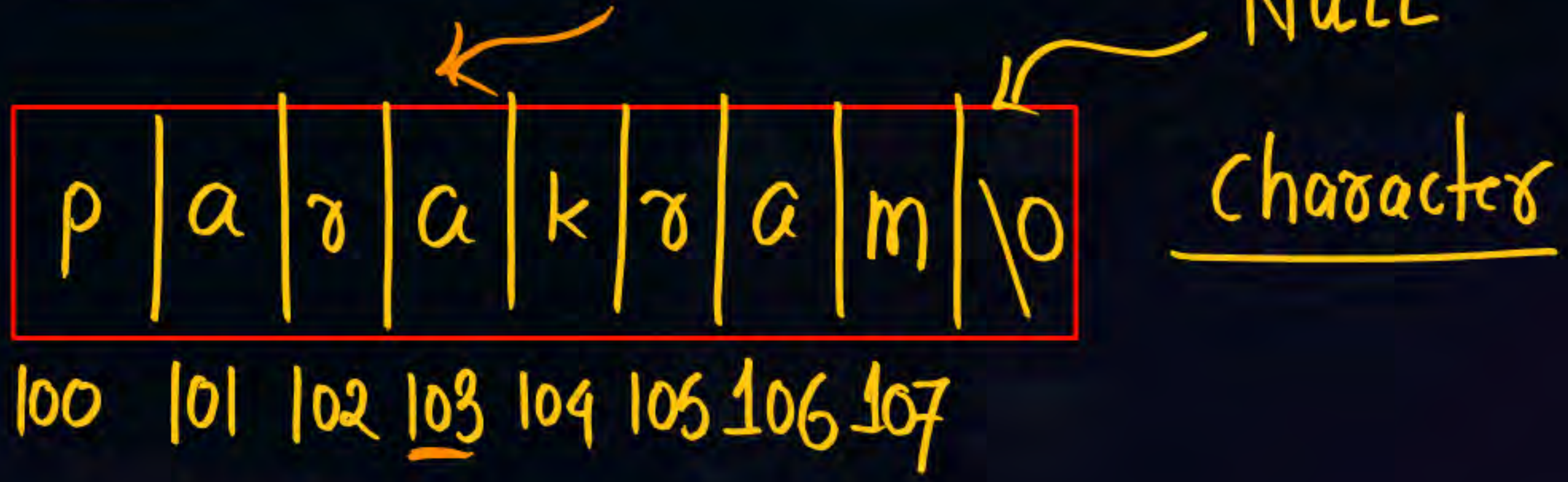
String

String is array of characte.

declaration of string

char ch1[] = "parakram";

1 character = 1 Byte



String

```
char ch, a[ ] = {'p', 'a', 'r', 'a', 'k', 'r', 'a', 'm', '\0'};
```

To print the string

```
printf("%s", a);
```

a → Base Address from where string is begining.

a → Every character got printed till NULL character

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String

```
char ch1[] = "parakram";

ch1++;  ← allowed ??   Not allowed

ch1[2] = 'S';  ← allowed

printf(%S, ch1+3);  ← allowed ??
              ↑
              Not modifying value of ch
```

Slide

String

```
char ch1[] = "parakram";

printf("%d", ch1[3]);

*(ch1+3)
*(100+3) =
*(103)
```

65 - A

97 - a

48 - '0'

```
printf("%d", ch1[8])
```

Slide

String

```
Char ch1[] = "parakrao";

printf("%d" ch1[7]);
```

$= \boxed{48}$

Slide

String

char *ch_2 = "parakram"; Second way to initialize the string using character pointer.

ch_2++; allowed?? yes

ch_2[2] = 'S';
printf("%s", ch_2); No output

Slide

String

```
Char *ch2 = "parakram";
```

↑

String declared in $\boxed{\text{ROM}}$ (Read only memory)

String can't be changed (immutable)

Slide

String

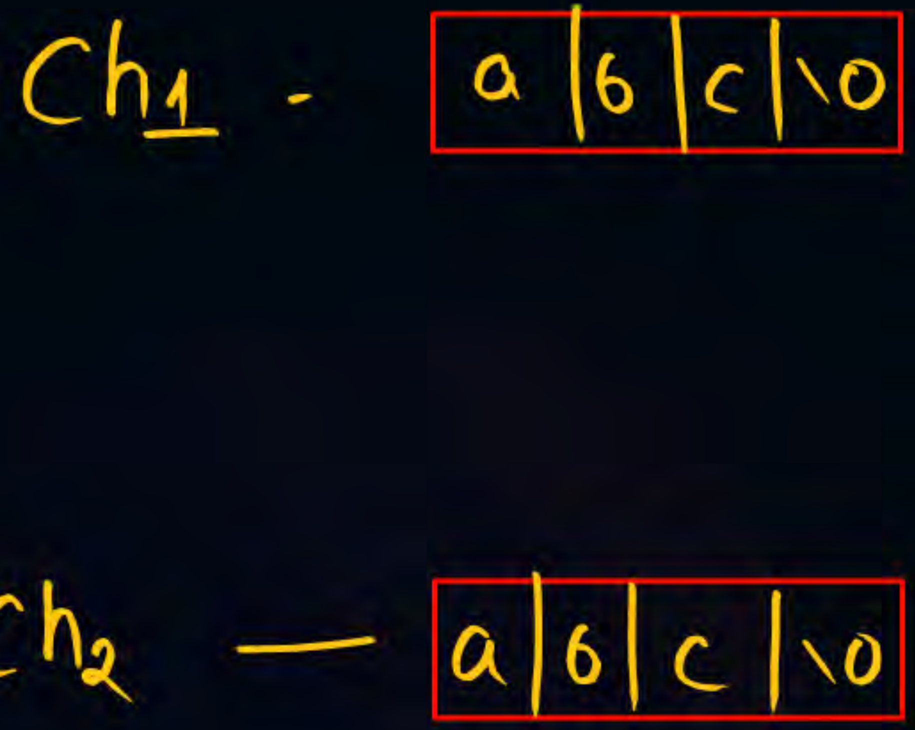
output ~~3~~323

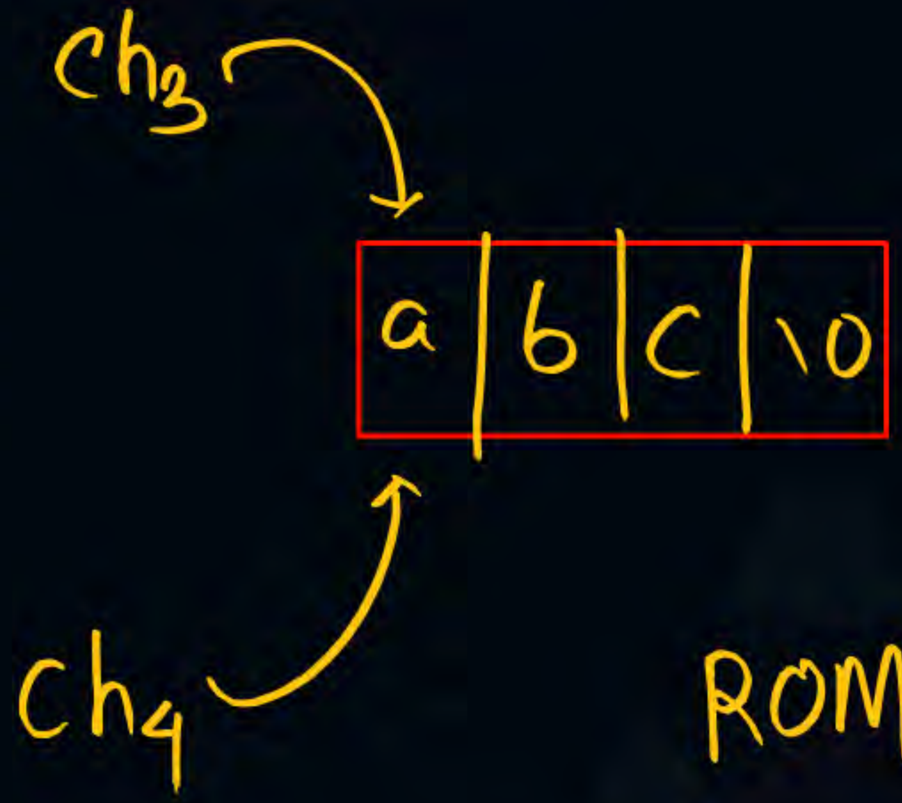
```
# include<stdio.h>
int main() {
    char ch1[] = "abc";
    char ch2[] = "abc;
    char *ch3 = def";
    char *ch4 = "def";
if (ch1==ch2)
    printf("%d", 1);
els
    printf("%d" 2);      2
if (ch3==ch4) ✓
    printf("%d", 3);     3
else
    printf("%d", 4);
}
```

Slide

String

Two different string will be present





ROM

for same string
one one string constant

Slide

String

Array of strings 2 Dimension Array of character

Char ch[2][10] = { "parakram", "vijay }; $\boxed{20B}$

↓

p	a	r	a	k	r	a	m	\0	\0	v	i	j	a	y	\0	\0	\0	\0	\0
100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119

$ch[1] = *(\underbrace{ch+1}) \rightarrow$ Adc

$*(100+1) = *(110) =$ vijay

Slide

String

Char ch[2][10]

ch :- 100 1D address ✓ Data type

*ch :- 100 character address

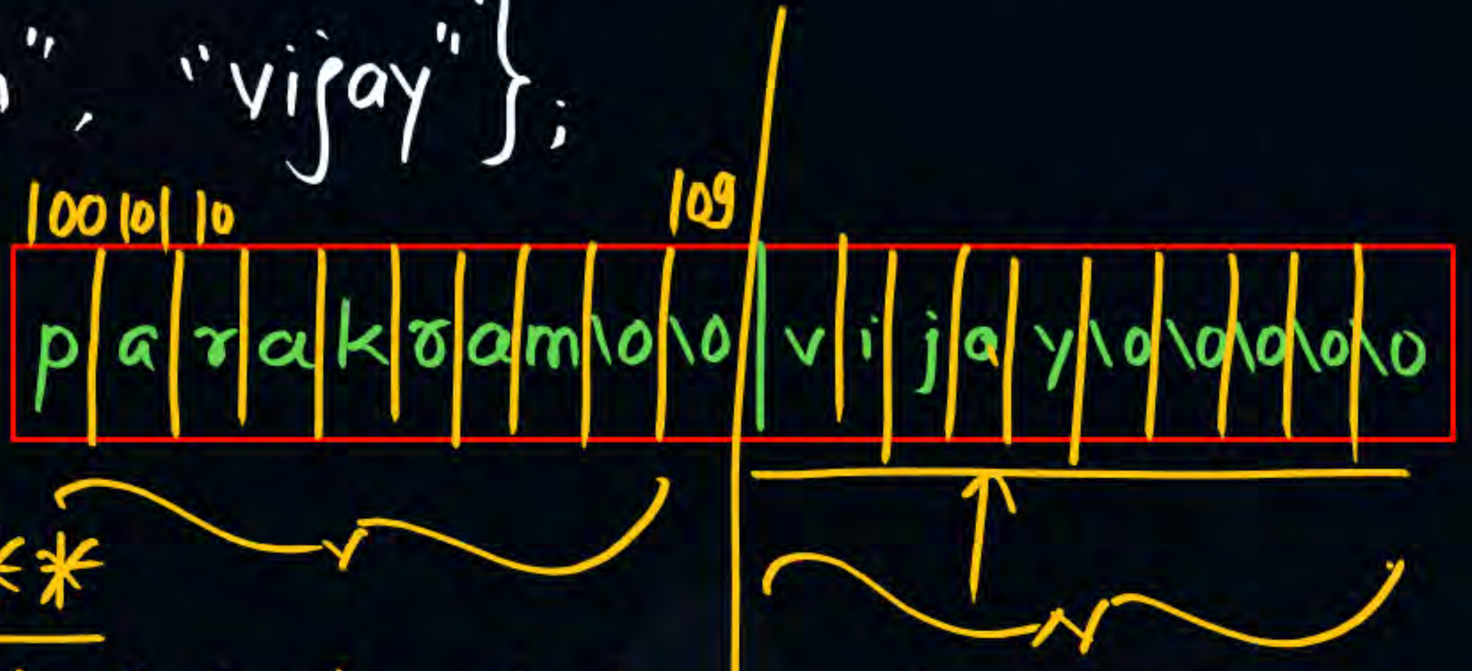
**ch :- p character

Slide

String

a parakram vijay

```
char ch[2][10] = {"parakram", "vijay"};
printf("%c", ch[1][3]);
printf("%s", ch[0]);
printf("%s", ch[0]+9);   ← It will Not print anything
printf("%s", ch[1]);     *(ch+1) = *(110) vijay
}
```



**

$*(ch+0) = \underline{*ch}$

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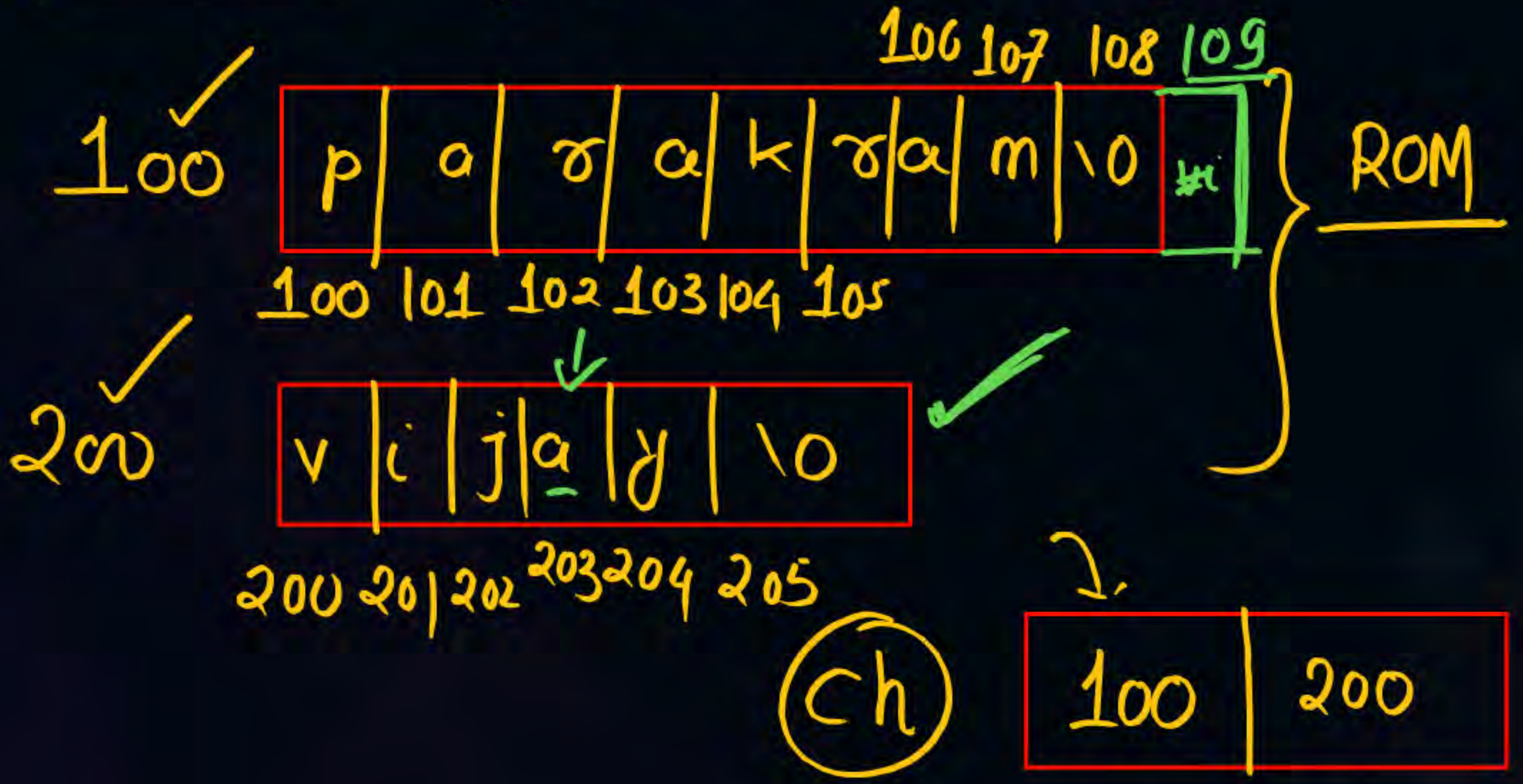
String

char *ch[2] = {"parakram", "vijay"};

*ch

Read only Memory



ch[0]

Array of character pointer

String

C[1][5] is NULL

```
* ch[2]   | 100 | 200 |

printf("%s", ch[0]);
printf("%s", ch[1]);

ch[0]          ch[1]

printf("%s", *ch);
            parakram
printf("%s", *ch+1) // arakram
printf("%s", *ch+8) // No output
printf("%s", *(ch+1) //  ch[1] vijay
printf("%c", c[1][3]); // (*(ch+1)+3)

printf("%s", *ch)
printf("%s", *(ch+1)
```

Slide

String

$c[1][5]$

$\underline{\underline{c[1]}}$

$$*\left(\underline{\underline{*(ch+1)}}+5\right)$$

$$*(200+5)$$

$$*(205) =$$

Slide

String

$*ch = \underline{100}$

$100 + 9 = \underline{109}$

ROM strings are consecutive or Not.

strcmp ✓

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2 mins Summary

Topic

Topic

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Topic

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THANK - YOU