**Array of Pointers**

/\* program for understanding the concept \*/

#include<stdio.h>

main()

{

static int arr[4] = {5, 10, 15, 20};

static int \*a[4] = {arr, arr+1, arr+2, arr+3};

int i;

int \*\*b; //contains address of pointer variable a (base address of a)

b = a;

for (i=0; i<4; i++)

{

printf(“ address = %u”, \*b);

printf(“value = %d \n”,\*\*b);

b = b+1;

}

}

arr[0] arr[1] arr[2] arr[3]

|  |  |  |  |
| --- | --- | --- | --- |
| 5 | 10 | 15 | 20 |

1000 1002 1004 1006

a[0] a[1] a[2] a[3]

|  |  |  |  |
| --- | --- | --- | --- |
| 1000 | 1002 | 1004 | 1006 |

**Output**

address = 1000 value = 5

address = 1002 value = 10

address = 1004 value = 15

address = 1006 value = 20

**Pointer and String**

A string is a collection of characters that are stored in a character array. Every string is terminated with a ‘\0’ (null character). It is automatically inserted at the end of every string.

char arr[] = {‘P’, ‘R’, ‘E’, ‘E’, ‘T’, ’H’, ‘A’, ‘\0’}

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| P | R | E | E | T | H | A | \0 |

1000 1001 1002 1003 1004 1005 1006 1007

/\*program to print the character of any string and also address of each character\*/

#include<stdio.h>

main()

{

char arr[] = ‘reeta”;

int i;

for (i=0; arr[i]!=’\0’; i++ )

{

printf( “address = %u\t”,&arr[i] );

printf( “character = %c\n”,arr[i] );

}

}

arr[0] arr[1] arr[2] arr[3] arr[4] arr[5]

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| R | E | E | T | A | \0 |

1000 1001 1002 1003 1004 1005

**Output**

address= 1000 character= r

address= 1001 character= e

address= 1002 character= e

address= 1003 character= t

address= 1004 character= a

/\*program to print the address and character of the string using pointer\*/

#include<stdio.h>

main()

{

char arr[] = ‘reeta”;

char \*a;

a = arr;

while (\*a !=’\0’)

{

printf(“address= %u\t”,a);

printf(“character= %u\n”,\*a);

a = a+1;

}

}

**Two-Dimensional Array of Characters**

char arr[5][10]= {

“riti”,

“niti”,

“kriti”,

“kittu”,

“nitin”

};

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| riti\0 | niti\0 | kriti\0 | kittu\0 | nitin\0 |

5000 5010 5020 5030 5040

/\*program to print the strings of the two-dimensional character array\*/

#include<stdio.h>

main()

{

char arr[5][10]= {

“riti”,

“niti”,

“kriti”,

“kittu”,

“nitin”

};

int I;

for (i=0; i<5;i++)

{

printf(“base address= %u”,&arr[i]);

printf(“string= %s\n”,arr[i]);

}

}

**Array of Pointers to String**

char \*arr = {

“riti”,

“niti”,

“kriti”,

“kittu”,

“nitin”

};

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| riti\0 | niti\0 | kriti\0 | kittu\0 | nitin\0 |

1000 2000 3000 4000 5000

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1000 | 2000 | 3000 | 4000 | 5000 |

6000 6002 6004 6006 6008

/\*program to print the address and string using array of pointer to string\*/

#include<stdio.h>

main()

{

int i;

char \*arr = {

“riti”,

“niti”,

“kriti”,

“kittu”,

“nitin”

};

for(i=0;i<5;i++)

{

printf(“address= %u\t”,(arr+i));

printf(“string= %s\n”, \*(arr+i));

}

}