1. how structure members are stored in memory?
2. What is structure padding?
3. How to avoid structure padding?

**1. HOW STRUCTURE MEMBERS ARE STORED IN MEMORY?**

Always, contiguous(adjacent) memory locations are used to store structure members in memory. Consider below example to understand how memory is allocated for structures.

**EXAMPLE PROGRAM FOR MEMORY ALLOCATION IN C STRUCTURE:**

C



|  |  |
| --- | --- |
| 1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28 | #include <stdio.h>  #include <string.h>    struct student  {         int id1;         int id2;         char a;         char b;         float percentage;  };    int main()  {      int i;      struct student record1 = {1, 2, 'A', 'B', 90.5};        printf("size of structure in bytes : %d\n",                             sizeof(record1));        printf("\nAddress of id1        = %u", &record1.id1 );      printf("\nAddress of id2        = %u", &record1.id2 );      printf("\nAddress of a          = %u", &record1.a );      printf("\nAddress of b          = %u", &record1.b );      printf("\nAddress of percentage = %u",&record1.percentage);        return 0;  } |

**OUTPUT:**

|  |
| --- |
| size of structure in bytes : 16 Address of id1 = 675376768 Address of id2 = 675376772 Address of a = 675376776 Address of b = 675376777 Address of percentage = 675376780 |

* There are 5 members declared for structure in above program. In 32 bit compiler, 4 bytes of memory is occupied by int datatype. 1 byte of memory is occupied by char datatype and 4 bytes of memory is occupied by float datatype.
* Please refer below table to know from where to where memory is allocated for each datatype in contiguous (adjacent) location in memory.

