Problem Solving Through Programming in C

Tutorial Session 5

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Arrays

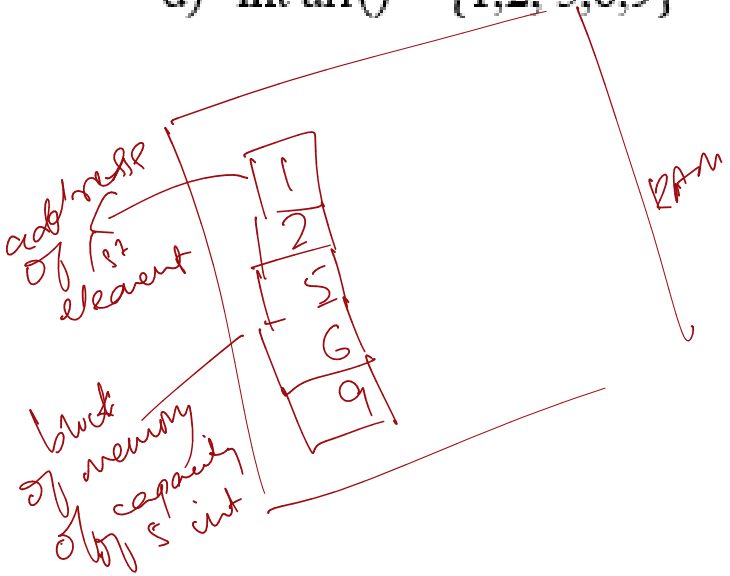
a set of contiguous memory location of a certain datatype

array of ~~size~~ N elements of integer type

Q. What is the right way to initialise an array in C?

a) int arr{}= {1,2, 5,6,9}
b) int arr[5] = {1,2, 5,6,9}
c) int arr{5} = {1,2, 5,6,9}
d) int arr() = {1,2, 5,6,9}

arr[7] = {1, 2, 5, 6, 9}



Q. An integer array (An integer takes two bytes of memory) of size 15 is declared in a C program. The memory location of the first byte of the array is 2000. What will be the location of the 13th element of the array?

2000 + 2 × 13
= 2026

a) 2013
b) 2024
c) 2026
d) 2030

Arrays

Q. What will be printed after execution of the following code?

```
#include<stdio.h>
int main()
{
int arr[10] = {1,2,3,4,5};
printf("%d", arr[5]);
return 0;
}
```

10 elements
5 elements
older compilers => garbage value
recent compilers => 0

a) Garbage value
b) 0
c) 5
d) 6

Q. What is the output of the following C program?

```
#include<stdio.h>
int main()
{
  int arr[2] = {1, 2, 3, 4, 5};
  printf("%d", arr[3]);
  return 0;
}
```

array of 2 elements
initializing 5 elements

a) 3
b) 4
c) No output
d) Compilation error

Arrays

Q. How many 'a' will be printed when the following code is executed?

```
#include <stdio.h>
int main()
{
int i = 0;
   char c = 'a';
   while (i< 5)
 {
i++;
      switch (c)
      {
         case 'a':
printf("%c ", c);
         break;
      }
   }
printf("a\n");
return 0;
}
```

i=0
1st iter
i=1
2nd iter
i=2
3rd iter
i=3
4th iter
i=4
5th iter
i=5
6th iter
X

a aaaaa
6

a) 5
b) 3
c) 6
d) 4

Q. An array of the void data type

a) can store any data-type
b) only stores element of similar data type to first element
c) acquires the data type with the highest precision in it
d) It is not possible have an array of void data type

Which is the correct statement?

Arrays

Q. What will be the output when the following code is executed.

```
#include <stdio.h>
int main()
{
int a[6] = {1,2,3,4,5,6};
    switch(sizeof(a))
    {
    case 1:
    case 2:
    case 3:
    case 4:
    case 5:
printf("IIT KGP");
        break;
    }
printf("IIT MADRAS");
    return 0;
}
```

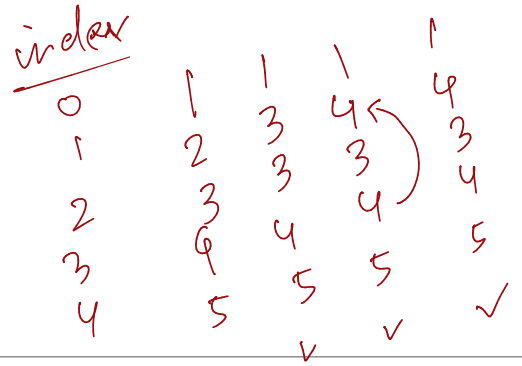
a) IIT KGP
b) IIT MADRAS
c) Compilation error
d) No output

Q. What will be the output?

```
#include <stdio.h>
int main()
{
    int p;
    int arr[10]={1,2,3,4,5,6,9,10};
    p=(arr+1)[5];
    printf("%d", p);
    return 0;
}
```

a) 5
b) 6
c) 9
d) 10

Arrays



Q. What is the output of C Program.?

```
#include <stdio.h>
int main()
{
   int a[3] = {10,12,14};
   a[1] = 20;
   int i = 0;
   while(i<3)
    {
       printf("%d ", a[i]);
       i++;

    }
   return 0;
}
```

a) 20 12 14
b) 10 20 14
c) 10 12 20
d) Compiler error

Q. Find the output of the following C program

```
#include<stdio.h>
int main()
{
        int a;
        int arr[5] = {1, 2, 3, 4, 5};
        arr[1] = ++arr[1];
        a = arr[1]++;
        arr[1] = arr[a++];
        printf("%d, %d", a, arr[1]);
        return 0;
}
```

a) 5, 4
b) 5, 5
c) 4, 4
d) 3, 4

Arrays

Q. What will be the output after execution of the program?

```
#include <stdio.h>
int main()
{
   int i, a[4]={3,1,2,4}, result;
   result=a[0];
   for(i=1;i<4;i++)
   {
            if(result>a[i])
            continue;
            result=a[i];
   }
   printf("%d", result);
   return 0;
}
```

a) 1
b) 2
c) 3
d) 4

Q. What will be the output?

```
#include<stdio.h>
int main()
{
int n = 2;
int sum = 5;
switch(n)
{
        case 2: sum = sum-3;
        case 3: sum*=4;
        break;
        default:
                sum =0;

}
printf("%d", sum);
   return 0;
}
```

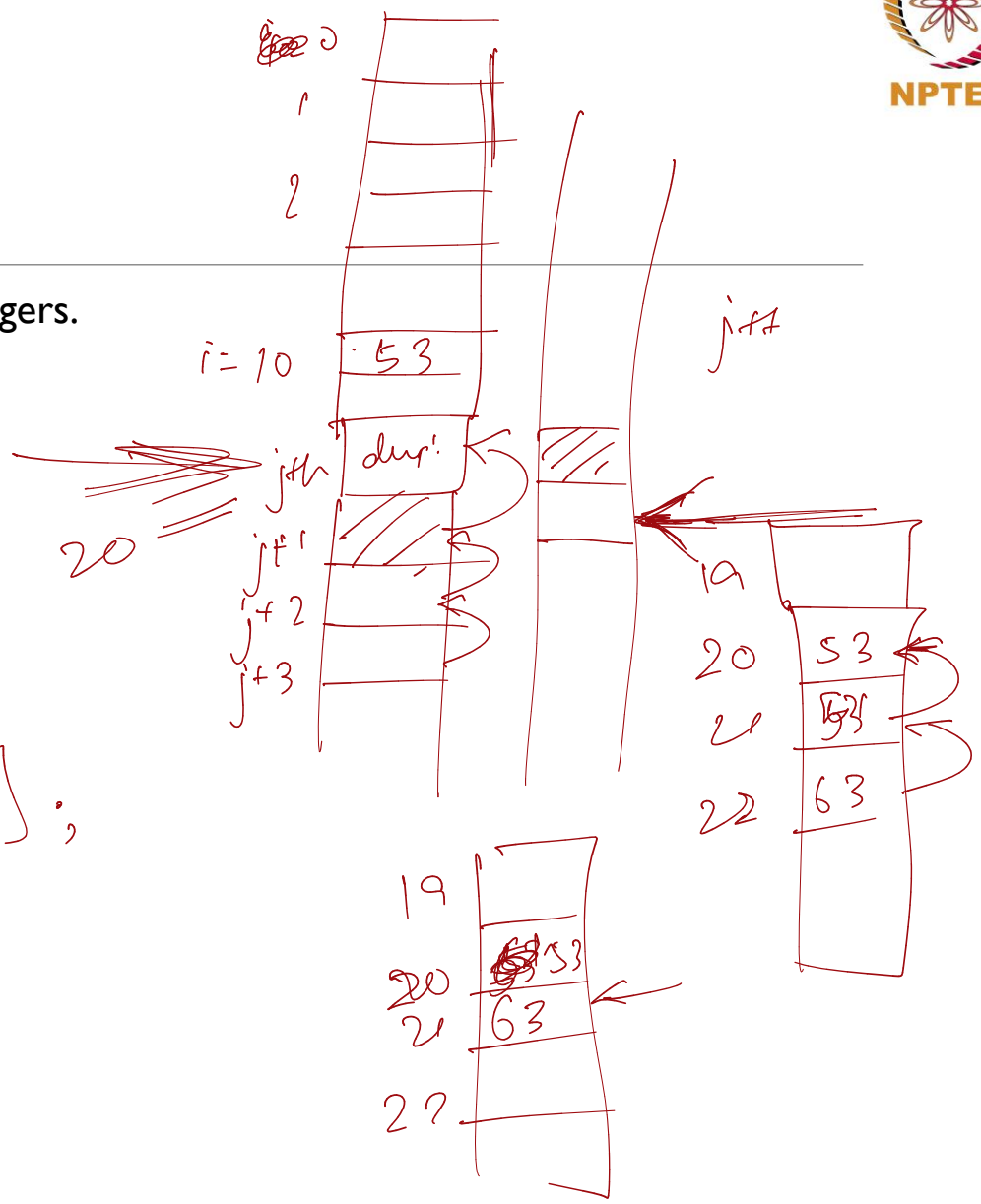
a) 8
b) 0
c) 5
d) 20

Arrays

arr[size]

Write a C program to delete duplicate elements from an array of 50 integers.

```
size = 50;
for(i=0; i<size-1; i++)
{  for(j=i+1; j<size ;)
   {  if(arr[i]==arr[j])
      {  for(k=j; k<size-1; k++)
         {  arr[k] = arr[k+1];
         }
         size--;
      }
      else j++;
   }
}
```



Arrays

Write a C program to delete duplicate elements from an array of 50 integers.

```
#include<stdio.h>
int main() {
int size=50, array[size], i,j,k;
for (i = 0; i< size-1; i++)  scanf("%d", &array[i]);
for (i = 0; i< size; i++) {
    for (j = i + 1; j < size;) {
        if (array[j] == array[i]) {
            for (k = j; k < size-1; k++)     array[k] = array[k + 1];
            size--;
            }
        else   j++;
    }
}
for (i = 0; i< size; i++)  printf("%d\n", array[i]);
return 0;}
```