Return pointer from functions in C

We have seen in the last chapter how C programming allows to return an array from a function. Similarly, C also allows to return a pointer from a function. To do so, you would have to declare a function returning a pointer as in the following example −

```
int * myFunction() {
   .
   .
   .
}
```

Second point to remember is that, it is not a good idea to return the address of a local variable outside the function, so you would have to define the local variable as **static** variable.

Now, consider the following function which will generate 10 random numbers and return them using an array name which represents a pointer, i.e., address of first array element.

Live Demo

```
#include <stdio.h>
#include <time.h>

/* function to generate and return random numbers. */
int * getRandom( ) {

   static int  r[10];
   int i;

   /* set the seed */
   srand( (unsigned)time( NULL ) );

   for ( i = 0; i < 10; ++i) {
      r[i] = rand();
      printf("%d\n", r[i] );
   }

   return r;
}
```

```
/* main function to call above defined function */
int main () {

   /* a pointer to an int */
   int *p;
   int i;

   p = getRandom();

   for ( i = 0; i < 10; i++ ) {
      printf("*(p + [%d]) : %d\n", i, *(p + i) );
   }

   return 0;
}
```

When the above code is compiled together and executed, it produces the following result −

```
1523198053
1187214107
1108300978
430494959
1421301276
930971084
123250484
106932140
1604461820
149169022
*(p + [0]) : 1523198053
*(p + [1]) : 1187214107
*(p + [2]) : 1108300978
*(p + [3]) : 430494959
*(p + [4]) : 1421301276
*(p + [5]) : 930971084
*(p + [6]) : 123250484
*(p + [7]) : 106932140
*(p + [8]) : 1604461820
*(p + [9]) : 149169022
```