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Exercise on Strings

1.)What would be the output of the following programs:

(a)

```
main( )
{
        char c[2] = "A" ;
        printf ( "\n%c", c[0] ) ;
        printf ( "\n%s", c ) ;
}
```

Output:

A
A

(b)

```
main( )
{
        char s[ ] = "Intro to programming with C!" ;
        printf ( "\n%s", &s[2] ) ;
        printf ( "\n%s", s ) ;
        printf ( "\n%c", s[2] ) ;
}
```

Output: tro to programming with C!
Intro to programming with C!
t

(c)

```
main( )
{
        char s[ ] = "Weird syntax" ;
        int i = 0 ;
        while ( s[i] != '\0' )
        {
                printf ( "\n%c %c", s[i], *( s + i ) ) ;
                printf ( "\n%c %c", i[s], *( i + s ) ) ;
                i++ ;
        }
}
```

Output:

(d)

```
int main(void) {
  char arr1[10] = "test1";
  char arr2[20] = "Test1";
  if(strcmp(arr1, arr2)<0)
    printf("arr1 smaller");
  else if(strcmp(arr1, arr2)==0)
    printf("Same");
  else
    printf("arr1 is larger");

  return 0;
}
```

Output: Arr1 is larger

(e)

```
int main( ) {
  char s[] = "Da gaad feel gaad!" ;
  char x = 'o';
  char t[25] ;
  strcpy(t, s);
  int i=0;
  while ( s[i] != '\0' ) {
    if (t[i] == 'a')
       *(s+i) = x  ;
    i++;
  }

  printf ( "\n%s", s ) ;

  return 0;
}
```

Do good feel good

(f)

```
void encrypt(char A[][20], int cypher, int
size){
for(int i = 0; i<size; i++)
   for(int j=0; A[i][j] != '\0'; j++)
      A[i][j] = A[i][j] + cypher;
}

int main(void) {
  char arr[4][20] =
  {  "ford", "nissan", "accura", "audi" };
  encrypt(arr, 2, 5);
  for(int i = 0; i<4; i++) {
    printf("%s\n", arr[i]);
  }
  return 0;
}
```

? encrypt ?

2.) Fill in the blanks:

(a) "A" is a array (literal) while 'A' is a character (constant).

(b) A string is terminated by a null character, which is written as '\0'.

(c) The array char name[10] can consist of a maximum of 10 characters to become an string.

(d) The array elements are always stored in sequential memory locations.

3.) Point out any error in the following statements. Write "no error" in the right side if you think there is no error. Otherwise, correct the errors:

a) char X = "this is a string"; char array

b) char X[4] = {'t', 'h', 'i', 's', '\0' }; no error

c) char x = "A"; no size declared

d) char x[100] = "A"; no error

4.) Consider a string "1234". Write **a function** that takes a string containing some digits in it. The function converts that string into an integer and returns that integer. For example, if you pass "1234" to the function, the return value should be 1234. Do not write the main function.

Hint: Get the length of the string and then read each character, convert that character into digit. To convert char to digit, you can use their ascii values. For example, ascii value of '3' is 51, and ascii value of '0' is 48. So, 51 – 48 is 3.
After converting each character, gradually generate the number. For example, for "1234":

0*10 + 1 = 1
1 * 10 + 2 = 12
12 * 10 + 3 = 123
123 * 10 + 4 = 1234