Day4_Cprogramming

ASCII Code
0 - 255

Extended ASCII
-32

ASCII
String--> Not ASNI
Functions
Scope
  Scope
  Life Time

```
#inlcude <stdio.h>

int main(){
    char gender;
     printf("Please Enter Your Gender\n");
     scnaf("%c", &gender);
     printf("Your Gender Is  (%c) \n",gender);
     printf("Your Gender Is  (%i) \n",gender);
     printf("Your Gender Is  (%x) \n",gender);

return 0;
}
```

gender

90

'm' 0xf10

Uni Code -- > Arabic

Output

```
Please Enter Your Gender
m
```

dec	hex	oct	char	dec	hex	oct	char	dec	hex	oct	char	dec	hex	oct	char
0	0	000	NULL	32	20	040	space	64	40	100	@	96	60	140	`
1	1	001	SOH	33	21	041	!	65	41	101	A	97	61	141	a
2	2	002	STX	34	22	042	"	66	42	102	B	98	62	142	b
3	3	003	ETX	35	23	043	#	67	43	103	C	99	63	143	c
4	4	004	EOT	36	24	044	$	68	44	104	D	100	64	144	d
5	5	005	ENQ	37	25	045	%	69	45	105	E	101	65	145	e
6	6	006	ACK	38	26	046	&	70	46	106	F	102	66	146	f
7	7	007	BEL	39	27	047	'	71	47	107	G	103	67	147	g
8	8	010	BS	40	28	050	(	72	48	110	H	104	68	150	h
9	9	011	TAB	41	29	051	)	73	49	111	I	105	69	151	i
10	a	012	LF	42	2a	052	*	74	4a	112	J	106	6a	152	j
11	b	013	VT	43	2b	053	+	75	4b	113	K	107	6b	153	k
12	c	014	FF	44	2c	054	,	76	4c	114	L	108	6c	154	l
13	d	015	CR	45	2d	055	-	77	4d	115	M	109	6d	155	m
14	e	016	SO	46	2e	056	.	78	4e	116	N	110	6e	156	n
15	f	017	SI	47	2f	057	/	79	4f	117	O	111	6f	157	o
16	10	020	DLE	48	30	060	0	80	50	120	P	112	70	160	p
17	11	021	DC1	49	31	061	1	81	51	121	Q	113	71	161	q
18	12	022	DC2	50	32	062	2	82	52	122	R	114	72	162	r
19	13	023	DC3	51	33	063	3	83	53	123	S	115	73	163	s
20	14	024	DC4	52	34	064	4	84	54	124	T	116	74	164	t
21	15	025	NAK	53	35	065	5	85	55	125	U	117	75	165	u
22	16	026	SYN	54	36	066	6	86	56	126	V	118	76	166	v
23	17	027	ETB	55	37	067	7	87	57	127	W	119	77	167	w
24	18	030	CAN	56	38	070	8	88	58	130	X	120	78	170	x
25	19	031	EM	57	39	071	9	89	59	131	Y	121	79	171	y
26	1a	032	SUB	58	3a	072	:	90	5a	132	Z	122	7a	172	z
27	1b	033	ESC	59	3b	073	;	91	5b	133	[	123	7b	173	{
28	1c	034	FS	60	3c	074	<	92	5c	134	\	124	7c	174	|
29	1d	035	GS	61	3d	075	=	93	5d	135	]	125	7d	175	}
30	1e	036	RS	62	3e	076	>	94	5e	136	^	126	7e	176	~
31	1f	037	US	63	3f	077	?	95	5f	137	_	127	7f	177	DEL

www.alpharithms.com

```c
#include <stdio.h>

int main(){
        char gender;
         do{
             printf("Please Enter Your Gender\n");
             _flushall();
             scanf("%c", &gender);
             printf("Your Gender Is    (%c)   \n",gender);//109
             printf("Your Gender Is    (%i)   \n",gender);
             printf("Your Gender Is    (%x)   \n",gender);
             printf("Your Gender Is    (%o)   \n",gender);
         }while(1);

return 0;
}
```

```c
#include <stdio.h>

int main(){
    char gender;
     do{
       printf("Please Enter Your Gender\n");
       _flushall();
       scanf("%c", &gender);
       printf("Your Gender Is  (%c) \n",gender);//109
       printf("Your Gender Is  (%i) \n",gender);
       printf("Your Gender Is  (%x) \n",gender);
       printf("Your Gender Is  (%o) \n",gender);
     }while(1);

return 0;
}
```

String

```
#inlcude <stdio.h>


int main(){
    char Name;
    printf("Please Enter Your Name\n");
    scnaf("%c",&Name);

return 0;
}
```

Output

```
Please Enter Your Name
Mustafa Ab
```

Array

1. Fixed Number Of Variable
2. Stored Sequential In Memory
3. All Value In Array Must Be From Same Datatype
4. Name Of Array It Self == Address Of First Element

V1 Not Very Good

```
#inlcude <stdio.h>


int main(){
   char Name[7];
   Name[0] = 'M';
   Name[1] = 'u';
   Name[2] = 's';
   Name[3] = 't';
   Name[4] = 'a';
   Name[5] = 'f';
   Name[6] = 'a';

  for(int i=0 ;i<7;i++){
     printf("%c",Name[i]);
}

return 0;
}
```

V2 Not Very Good

```
#inlcude <stdio.h>


int main(){
   char Name[100];

for(int i=0 ;i<100; i++){
 printf("Please Enter Char Number %i\n",i + 1);
 scanf("%c", &Name[i];
}

for(int i=0;i<100;i++){
   printf("%c",Name[i]);
}


return 0;
}
```

V3 Not Very Good

```
#include <stdio.h>

int main(){
  char Name[100];
  int counter = 0;
  int status =1;

  do{
    printf("Please Enter Character\n");
    _flushall();
    scanf("%c", &Name[counter]);
    counter++;
    printf("Do You Want To Continuue? y/n\n");
    scanf("%i",&status);
  }while(status == 1);

  for(int i=0; i< counter;i++){
    printf("%c",Name[i]);
  }


return 0;
}
```


#include <string.h>

1. هى مكتبة مخصصة فى لغة c للتعامل مع النصوص
2. ان Array of Character هى ليها معاملة خاصة فى لغة c

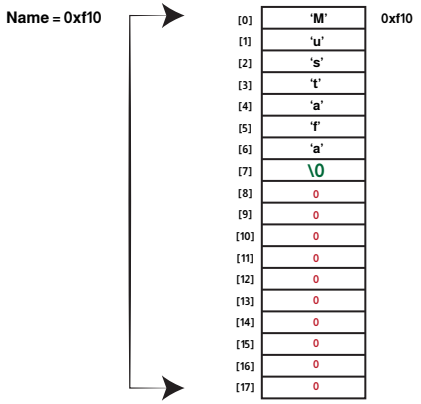
- strcpy(destination, Source);
- strcat(destination, Source);
- strcmp(val1, val2);
- strlen(var);
- %s

Fair

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

int main(){

char Name[100];
printf("Please Enter Your Name\n");
scanf("%s",Name);

printf("Your Name Is %s",Name);

return 0;
}

```

Format Specfier %s

1. فى حالة التعامل مع النصوص بإستخدام Scanf، سيظل يقرأ الحروف المدخلة حتى الضغط على زى Enter
   A. مع الضغط على زى Enter هيضيف حاجة اسمها (\0) Null Charcter / Termination Charcter
   B. بيقدر يعرف عن طريقها نهاية سلسلة الحروف المدخلة
2. فى حالة تعاملها مع printf يظل يطبع الحروف حتى يصطدم بـ؟ \0 Nul Charcter



Output

```
please Enter Your Name
Mustafa

Your Name Is "Mustafa";
End Of Program
```

لكن الحلو ميكملش

1. مع scanf يعتبر space على انها \0
2. بيفضل ياخد بيانات بدون حدود معينة
   A. ده بسيبب حاجة اسمها overflow

- **gets(Var)**

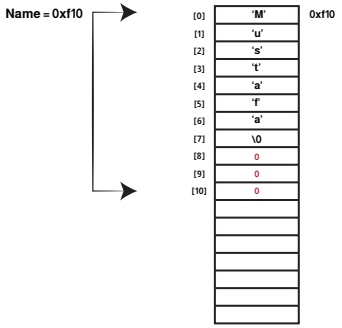
1. بيفضل ياخد بيانات بدون حدود معينة
A. ده بسيبب حاجة اسمها overflow

```c
#include <stdio.h>
#include <string.h>

int main(){

char Name[10];
    printf("Please Enter Your Name\n");
    gets(Name);

    printf("Your Name Is %s",Name);

return 0;
}
```

- **fgets(Destination, Size, Source)**

Very Good

```c
#include <stdio.h>
#include <string.h>

int main(){

char Name[10];
    printf("Please Enter Your Name\n");
    fgets(Name, 10, stdin);

    printf("Your Name Is %s",Name);

return 0;
}
```



- تحل مشكلة Space
- وتحل مشكلة Overflow

'M'	'u'	's'	't'	'a'	'f'	'a'	'\0'

5

4

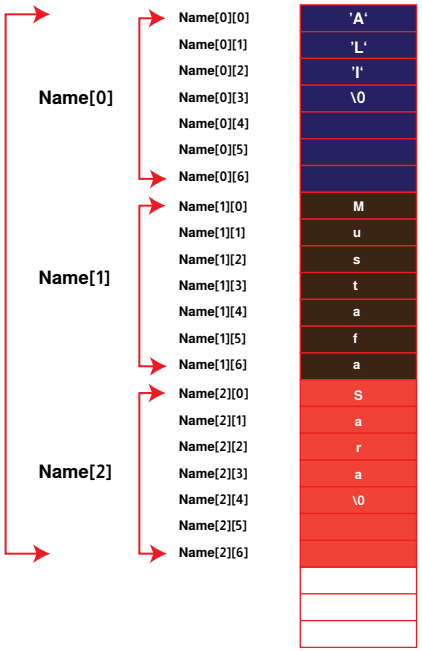
```c
#include <stdio.h>
#include <string.h>

int main(){

char Name[10];
  printf("Please Enter Your Name\n");

  fgets(Name, sizeof(Name), stdin);

  printf("Your Name Is %s\n",Name);
  printf("Size OF int %i\n",sizeof(int));
  printf("Size OF double %i\n",sizeof(double));
  printf("Size OF char %i\n",sizeof(char));
  printf("Size OF float %i\n",sizeof(float));
return 0;
}
```

2D Array

Name

char Names[3][7];

```c
for(int i=0;i< 3;i++){
printf("Please Enter Name %i",i + 1);
scanf("%s", Name[0]);

}
```



0	1	2	3	4	5	6	7
1	'A'	'L'	'I'	\0			
2	M	U	S	T	A	F	A
3	S	a	r	a			

Int 1D Array --> 1 Loop
Int 2D Array --> 2Loop

Char 1D Array --> 0 Loop --> %s
Int 2D Array --> 1Loop --> %s

```
Ali
MustafaSara
Sara
```

6

Functions

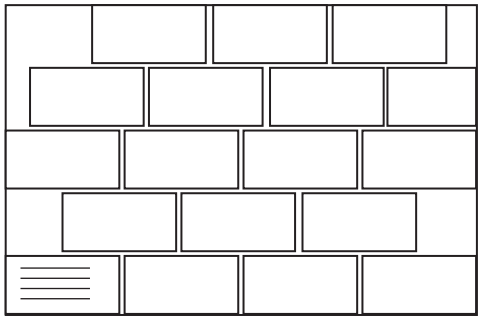
Structre

Sequential Programming

- _____
- _____
- _____
- _____
- _____
- _____

Reasbility
DRY --> Dont Repeat Your Self
Maintanance
Modification
Perforamnce
File Size

Procedural/Functional Programming



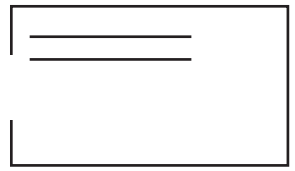
Funcation

Set Of Instruction, in One Block
Every Function Reponsible On One Task

لما بعمل كوبايل للبرنامج بيمر عليهم لكن لا يقوم بتنفيذهم
لا ينفذهم الا اذا تم مناداتهم، عن طريق اسم الـFuntion

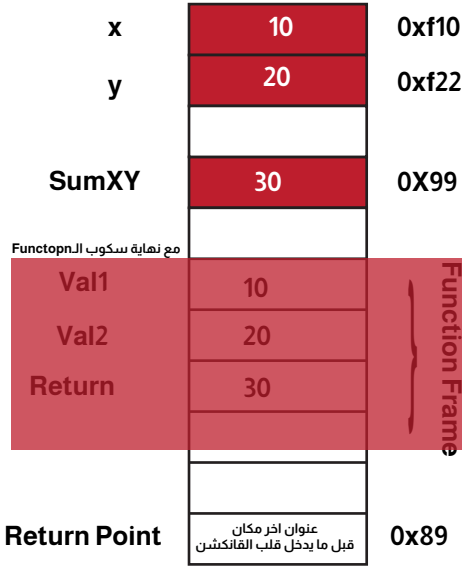
```
DataType    FunctionName(Paramerts/Optional){

 //Logic
}
```

الهدف منه تمرير متغيرات من خارج الفانكشن



```c
#include <stdio.h>

int Sum(int val1, int val2){
    return val1 + val2;
}

int main(){
    int x;
    int y;
    printf("Please ENter x Value\n");
    scanf("%i",&x);

    printf("Please ENter y Value\n");
    scanf("%i",&y);

    int SumOfXY = Sum(x, y);
    printf("Sum Of x + y = %i\n",SumOfXY);
return 0;
}
```

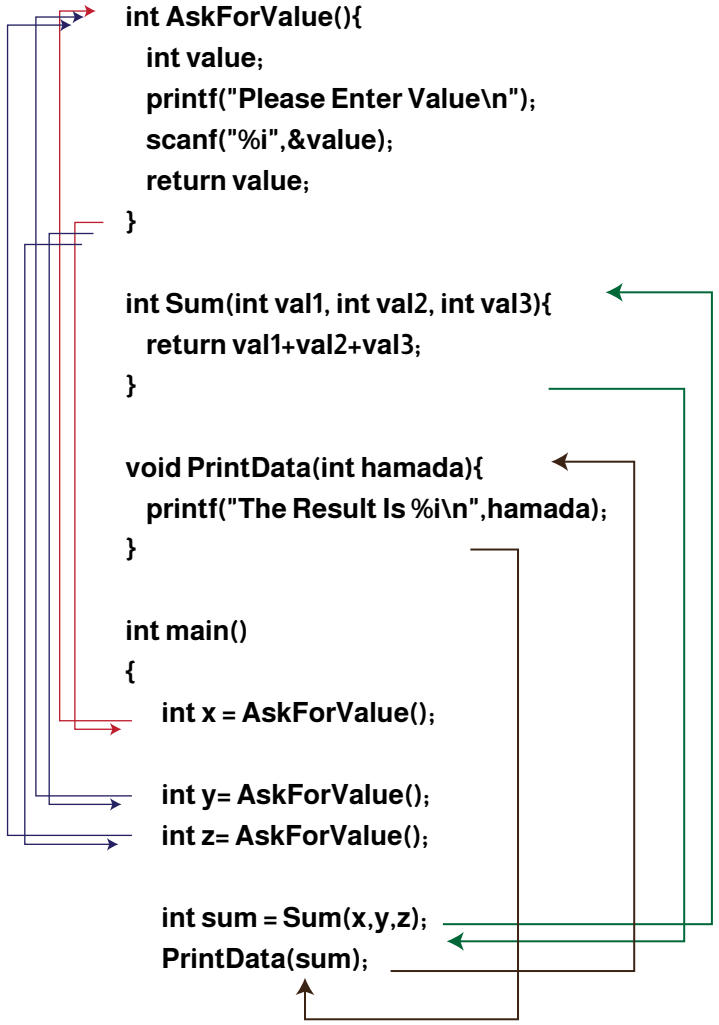
```
Please Enter x Value
10
Please Enter y Value
20
Sum of x + y = 30
```




```c
#inlcude <stdio.h>

int Sum(){
   int x=10;
   int y=20;

return x + y;
};

int main(){

int x = Sum();
printf("%i",Sum());

return 0;
}
//Return 0 In Most Of Operation System Mean That End Of Program
//Free Memory
```

```c
#include <stdio.h>
#include <stdlib.h>

int AskForValue(){
    int value;
    printf("Please Enter Value\n");
    scanf("%i",&value);
    return value;
}

int Sum(int val1, int val2, int val3){
    return val1+val2+val3;
}

void PrintData(int hamada){
    printf("The Result Is %i\n",hamada);
}

int main()
{
    //    int x = AskForValue();
    //
    //    int y= AskForValue();
    //    int z= AskForValue();
    //
    //    int sum = Sum(x,y,z);
    //    PrintData(sum);
    //

    PrintData(Sum(AskForValue(), AskForValue(), AskForValue()));


    return 0;
}

```

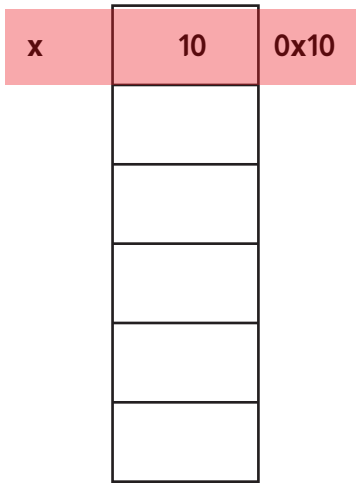
1



Every Variable Has Some Info

Address
Name
Type --> Size
Value
Scope
Lifetime

```
int main()
{
  printf("Hello World");
  printf("Hello World");
  printf("Hello World");
  {
    int x =10;;
    printf("Hello World\n");
  }
  printf("%i\n",x);//Error
  return 0;
}
```




```c
#include <stdio.h>
#include <stdlib.h>
void any(){
    int x=10;
}

int main()
{
int x =10;
    {
        int x = 20;
        printf("x = %i\n",x);
        //printf("z = %i\n",z);//error
        {
            int z=25;
        }
        printf("z = %i\n",z);//Error
        {
            {

            }
        }
    }

    for(int i=0; i<10;i++){
        //logic
    }

    printf("%i",i)//error
return 0;
}//-->

```

//Function Prototype Search

Lab Day4

- **Write Function Take 1 value and return it's Square**
- **Write Function To Check If Number Is Prime Number**
- **Write Function Take Number and print all Prime Number From 2 to That Number**
- **Write Function Take String And Print it reversed**
  - **Hello --> olleH**
  - **Square --> erauqS**
- **Write Function Take String and check if Palindrome**
  - **noon --> Palindrome**
  - **mama --> Not Palindrome**
  - **WOW --> Palindrome**