

In class 1

Oscar Bedolla

Git:

Output:

The image displays two screenshots of a Replit online C compiler interface. The top screenshot shows a C program that declares and initializes an array of 10 doubles, prints its elements, and then declares a second array of 5 doubles. The bottom screenshot shows a C program that uses an if-else structure to check the value of a variable 'a' and prints the corresponding message.

Top Screenshot:

```
main.c
1
2 //Arrays -- allocate one contiguous block of memory
3 //holding declaring multiple of one data type
4 //name of array used is an address of memory.
5 //Declaration with Assignment -- declaring 10 doubles
6 double balance[10] = {1000.0, 2.0, 3.4, 7.0, 50.0};
7
8 //when using in calculation or assignment below recall
9 //always start at 0
10 //balance[0] = 1000.0, balance[3] = 7.0, balance[7] =
11 //0, balance[10] = error out of bounds
12
13 //Also acceptable because size will be known. Size will
14 //be 5 hence --> double balance[5]
15 double balanceTwo[] = {1000.0, 2.0, 3.4, 7.0, 50.0};
16
17 //code example
18 #include <stdio.h>
19
20 int main () {
21     int n[ 10 ]; /* n is an array of 10 integers */
22     int i,j;
```

clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
clang-7 -pthread -lm -o main main.c
./main
Element[0] = 100
Element[1] = 101
Element[2] = 102
Element[3] = 103
Element[4] = 104
Element[5] = 105
Element[6] = 106
Element[7] = 107
Element[8] = 108
Element[9] = 109

Bottom Screenshot:

```
main.c
20
21 else if( a == 20 ) {
22     /* if else if condition is true */
23     printf("Value of a is 20\n" );
24 }
25
26 } else if( a == 30 ) {
27     /* if else if condition is true */
28     printf("Value of a is 30\n" );
29 }
30
31 } else {
32     /* if none of the conditions is true */
33     printf("None of the values is matching\n" );
34 }
35
36 printf("Exact value of a is: %d\n", a );
37
38 return 0;
```

clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
clang-7 -pthread -lm -o main main.c
./main
None of the values is matching
Exact value of a is: 100

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Files main.c

```
main.c
22 strcpy( book1.subject, "C Programming Tutorial" );
23 Book1.book_id = 6495407;
24
25 /* book 2 specification */
26 strcpy( Book2.title, "Telecom Billing");
27 strcpy( Book2.author, "Zara Ali");
28 strcpy( Book2.subject, "Telecom Billing Tutorial");
29 Book2.book_id = 6495700;
30
31 /* print Book1 info by passing address of Book1 */
32 printBook( &Book1 );
33
34 /* print Book2 info by passing address of Book2 */
35 printBook( &Book2 );
36
37 return 0;
38
39 }
40 void printBook( struct Books *book ) {
41
42     printf( "Book title : %s\n", book->title);
43     printf( "Book author : %s\n", book->author);
44     printf( "Book subject : %s\n", book->subject);
45     printf( "Book book_id : %d\n", book->book_id);
46 }
```

clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
clang-7 -pthread -lm -o main main.c
./main
Book title : C Programming
Book author : Nuha Ali
Book subject : C Programming Tutorial
Book book id : 6495407
Book title : Telecom Billing
Book author : Zara Ali
Book subject : Telecom Billing Tutorial
Book book_id : 6495700

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Files main.c

```
main.c
9 ip = NULL; // point to address w/for safety
10 ip = &var; /* Change where you point to. Now
pointing to address of var */
11
12 x = x + *ip; // x = 10 + 20. grabbing data where
pointer is pointing is called dereferencing the
pointer
13
14 ip = &x; //CHANGE WHERE ip points --> point to
address of x
15
16 //showing pointer calculation
17 ip = ip + 3; // address of ip + (3 * sizeof(int)) =
address of ip + 12
18
19 printf("Address of var variable: %x\n", &var );
20
21 /* address stored in pointer variable */
22 printf("Address stored in ip variable: %x\n", ip );
23
24 /* access the value using the pointer */
25 printf("Value of *ip variable: %d\n", *ip );
26
27 return 0;
28 }
```

clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
clang-7 -pthread -lm -o main main.c
main.c:19:44: warning: format specifies type 'unsigned int' but the argument has type 'int *' [-Wformat]
printf("Address of var variable: %x\n", &var);
main.c:22:49: warning: format specifies type 'unsigned int' but the argument has type 'int *' [-Wformat]
printf("Address stored in ip variable: %x\n", ip);
2 warnings generated.
./main
Address of var variable: ab46d838
Address stored in ip variable: ab46d840
Value of *ip variable: 4195728

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Files main.c

main.c saved

```
1 #include <stdio.h>
2 int main() {
3
4     char str[100];
5     int i;
6
7     printf( "Enter a value :");
8     fflush(stdout); //ECLIPSE BUG
9     scanf("%s %d",str, &i);
10
11     printf( "\n You entered: %s %d ",str, i);
12
13     return 0;}
```

clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)

```
* clang-7 -pthread -lm -o main main.c
* ./main
Enter a value :66
6

You entered: 66 6
```

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Files main.c

main.c saved

```
1 #include <stdio.h>
2 int main() {
3
4     char str[100]; //char array STRING used as
                    //buffer
5
6     printf( "Enter a value :");
7
8     fflush(stdout); //ECLIPSE BUG
9     gets( str );
10
11     printf( "\n You entered: ");
12     puts( str );
13
14     return 0;
15 }
```

clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)

```
* clang-7 -pthread -lm -o main main.c
main.c:9:4: warning: implicit declaration of function
      'gets' is invalid in C99
      [-Wimplicit-function-declaration]
      gets( str );
      ^
1 warning generated.
/tmp/main-6130dd.o: In function 'main':
main.c:(.text+0x3d): warning: the 'gets' function is danger
ous and should not be used.
* ./main
Enter a value :
```

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Files main.c

```
main.c
17 strcpy( Book1.title, "C Programming");
18 strcpy( Book1.author, "Nuha Ali");
19 strcpy( Book1.subject, "C Programming Tutorial");
20 Book1.book_id = 6495407;
21
22 /* book 2 specification */
23 strcpy( Book2.title, "Telecom Billing");
24 strcpy( Book2.author, "Zara Ali");
25 strcpy( Book2.subject, "Telecom Billing Tutorial");
26 Book2.book_id = 6495700;
27
28 /* print Book1 info */
29 printf( "Book 1 title : %s\n", Book1.title);
30 printf( "Book 1 author : %s\n", Book1.author);
31 printf( "Book 1 subject : %s\n", Book1.subject);
32 printf( "Book 1 book_id : %d\n", Book1.book_id);
33
34 /* print Book2 info */
35 printf( "Book 2 title : %s\n", Book2.title);
36 printf( "Book 2 author : %s\n", Book2.author);
37 printf( "Book 2 subject : %s\n", Book2.subject);
38 printf( "Book 2 book_id : %d\n", Book2.book_id);
39
40 return 0;
41
```

```
clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
> clang-7 -pthread -lm -o main main.c
> ./main
Book 1 title : C Programming
Book 1 author : Nuha Ali
Book 1 subject : C Programming Tutorial
Book 1 book_id : 6495407
Book 2 title : Telecom Billing
Book 2 author : Zara Ali
Book 2 subject : Telecom Billing Tutorial
Book 2 book_id : 6495700
```

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Files main.c

```
main.c
1 #include <stdio.h>
2
3 void swap(int *x, int*y) //defining function called swap
4 {
5     int z = *x;
6     *x = *y;
7     *y = z;
8 }
9
10
11 int main()
12 {
13     int a = 45, b = 35;
14     printf("Before Swap\n");
15     printf("a = %d b = %d\n", a, b);
16
17     swap(&a, &b);
18
19     printf("After Swap with pass by reference\n");
20     printf("a = %d b = %d\n", a, b);
21     return 0;
22 }
23
```

```
clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
> clang-7 -pthread -lm -o main main.c
> ./main
Before Swap
a = 45 b = 35
After Swap with pass by reference
a = 35 b = 45
```

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Files main.c

main.c

```
44 printf("you passea\n");
45
46 break;
47
48 case 'F' :
49
50     printf("Better try again\n");
51
52     break;
53
54 default :
55
56     printf("Invalid grade\n");
57
58 }
59
60
61
62 printf("Your grade is %c\n", grade);
63
64
65
66 return 0;
67
68
69
```

clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
clang-7 -pthread -lm -o main main.c
./main
Well done
Your grade is B

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Files main.c

main.c

```
1 //Ternary Operator - Can use in place of if/else or
2 switch
3
4 #include <stdio.h>
5
6
7 main()
8
9
10
11 int a, b;
12
13 a = 10;
14
15 printf("Value of b is %d\n", (a == 1) ? 20: 30 );
16
17
18 printf("Value of b is %d\n", (a == 10) ? 20: 30 );
19
20
21
```

clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
clang-7 -pthread -lm -o main main.c
main.c:7:1: warning: type specifier missing, defaults to
'int' [-Wimplicit-int]
main()
^
1 warning generated.
./main
Value of b is 30
Value of b is 20

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Files main.c

```
main.c
4  /*
5  Version :
6  Copyright : Your copyright notice
7  Description : Hello World in C, Ansi-style
8  =====
9  */
10
11 #include <stdio.h> //standard input output built into c
    library
12
13 typedef int number;
14
15 int main()
16 {
17     number c;
18     printf( "Enter a value :");
19     fflush(stdout); //ECLIPSE BUG
20     c = getchar( );
21
22     printf( "\nYou entered: ");
23     putchar( c );
24
25     return 0;
26 }
```

```
clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
> clang-7 -pthread -lm -o main main.c
> ./main
Enter a value :5
You entered: 5
```

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Files main.c

```
main.c
7  Description : hello world in C, Ansi-style
8  =====
9  */
10
11 #include <stdio.h>
12 #include <string.h>
13
14 //size allocated is 20 bytes. Regardless of which data
    you use. This way computer can change it at runtime
15 union Data {
16     int i; //4 bytes
17     float f; //4 bytes
18     char str[20]; //20 bytes
19 };
20
21 int main( )
22 {
23     union Data data;
24
25     printf( "Memory size occupied by data : %d\n",sizeof
        (data));
26
27     return 0;
28 }
```

```
clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
> clang-7 -pthread -lm -o main main.c
main.c:25:50: warning: format specifies type 'int' but the
argument has type 'unsigned long' [-Wformat]
...size occupied by data : %d\n",sizeof(data));
~ ~ ~~~~~
~ ~ ~~~~~
1 warning generated.
> ./main
Memory size occupied by data : 20
```

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Files main.c

```
main.c
11 //another example
12 #include <stdio.h>
13 #include <string.h>
14
15 union Data {
16     int i;
17     float f;
18     char str[20];
19 };
20
21 int main( ) {
22
23     union Data data;
24
25     data.i = 10;
26     printf( "data.i : %d\n", data.i);
27
28     data.f = 220.5;
29     printf( "data.f : %f\n", data.f);
30
31     strcpy( data.str, "C Programming");
32     printf( "data.str : %s\n", data.str);
33
34     return 0;
35 }
```

```
clang version 7.0.0-3-ubuntu0.18.04.1 (tags/RELEASE_700/final)
> clang-7 -pthread -lm -o main main.c
> ./main
data.i : 10
data.f : 220.500000
data.str : C Programming
```

Type here to search

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