In class 1

Oscar Bedolla

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Files   main.c   saved

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/fin
al)
> 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   saved

main.c

```
9    ip = NULL; // Point to address 0 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/fin
al)
> 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
```

Waiting for api.segment.io...

```c
#include <stdio.h>
int main( ) {

    char str[100];
    int i;

    printf( "Enter a value :");
    //fflush(stdout); //ECLIPSE BUG
    scanf("%s %d",str, &i);

    printf( "\n You entered: %s %d ",str, i);

    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
```

```c
#include <stdio.h>
int main( ) {

    char str[100];        //char array STRING used as buffer

    printf( "Enter a value :");

    fflush(stdout); //ECLIPSE BUG
    gets( str );

    printf( "\nYou entered: ");
    puts( str );

    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.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 dangerous and should not be used.
> ./main
Enter a value :
```

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Files

main.c

main.c   saved

```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/fin
al)
> 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   saved

```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/fin
al)
> 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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main.c   saved

```
44        printf( You passed\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/fin
al)
> clang-7 -pthread -lm -o main main.c
> ./main
Well done
Your grade is  B
```

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main.c   saved

```
1    //Ternary Operator - Can use in place of if/else or
     switch
2
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/fin
al)
> 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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main.c   ☐   saved

```
4    Author   :
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/fin
al)
> clang-7 -pthread -lm -o main main.c
> ./main
Enter a value :5

You entered: 5
```

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main.c   ☐   saved

```
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/fin
al)
> 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));
                                ~~    ^~~~~~~~~~~~
                                %lu
1 warning generated.
> ./main
Memory size occupied by data : 20
```

```c
//another example
#include <stdio.h>
#include <string.h>

union Data {
   int i;
   float f;
   char str[20];
};

int main( ) {

   union Data data;

   data.i = 10;
   printf( "data.i : %d\n", data.i);

   data.f = 220.5;
   printf( "data.f : %f\n", data.f);

   strcpy( data.str, "C Programming");
   printf( "data.str : %s\n", data.str);

   return 0;
}
```

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