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Core and Crux for Basic Programming in C and C++

- ❏ Range of unsigned int is from 0 to 65535, if i=65536 on increment it will become zero and after another increment it will be 1 and so on forth.
- ❏ **Unary**, **Conditional**, **Exponent** and **Assignment** operators have the **right to left** associativity. I.e. (the rightmost term will be evaluated first).
- ❏ **Braces have the highest precedence**.
- ❏ Int a=(2,3,4), braces consider only the last value and skip the all. So here a=4.
- ❏ **Comma operator** will consider only the first value and skip the all, e.g. int a=2,3,4,5; here a=2.
- ❏ Increment, Decrement Operators may or may not change their value in memory while evaluating with the logical operators, for e.g. (**0&&z++** and **1||z++**) here z won't increment because here compiler need not to check z while (**1&&z++** and **0||z++**) here compiler depends on the value of z, also **Logical Operators won't check the other terms if it is not necessary to check them**.
- ❏ We can **create a body** without **any function**, without any **if else statement** and or without any **class**.
- ❏ **Modulo operator works only on integer values**.(8.8%2 is not allowed)
- ❏ sizeof(pointer) is 4 bytes for modern OS and it is the same for all datatypes.
- ❏ int p:3; means here p can store only three bits of a number. **Colon restricts p to store only 3 bits**.
- ❏ **In an array x[5] can also be written as 5[x] and (x+5)[3] means x[8].**
- ❏ When a character array contains its first symbol as **null character** then the whole string will be null string.
- ❏ Consider **%c** as character, **%d** as decimal, **%s** as string, **%f** as float, **%lf** as double, **%o** as octal and **%x** as hexadecimal in **printf()** and **scanf()** function as **format specifier**.
- ❏ float i=0.2; here if(i==0.2){...} won't execute whereas if we assign float i=1.25 then if(i==1.25){...} will execute. Float takes terminating values(values which will terminate after multiplying by 2^n) as true assignment.
- ❏ In **printf()** and **scanf()** functions there must be a format specifier for each variable.(If there are less number of format specifiers then compilers consider first for first, second for second respectively and skip the last variables without printing and scanning them.)
- ❏ **Assignment of a printf() and scanf() function to a variable is assigned as the number of symbols in the string.** I.e. c=printf("rohit"); here c=5; and c=printf("%d",78); here c =3 and c=printf("\n%d,56); here c=3.(\n will also be included).
- ❏ printf(3+"ohhsenorita"); print senorita.
- ❏ Any value with **0x** prefix is in hexadecimal notation ie. 0x10 (10 of hexadecimal is equal to 16 in decimal).
- ❏ Any value with **0** prefix is in octal notation ie. 010 (10 of octal is equal to 8 in decimal).

- ❏ **sizeof(x)** means size of the data type(if the datatype is a string then we include the spaces and if the data type is char array then we include the null character too).
- ❏ In **sizeof()** operator increment and decrement operator won't work. sizeof(++a) will not increment the value of a.
- ❏ **strlen()** function is used to find the length of the string.
- ❏ The **size of union** is the **maximum size of a single variable** of the variables it contains while in the structure data type the size is the total size of its variables.
- ❏ **Static variables** can be **initialized only once** and must be **initialized by a constant**, not a variable and static variables hold their value in the entire code. But it can be assigned a new value every time explicitly.
- ❏ Default value of static int is zero(0), garbage otherwise.
- ❏ **Exit:** quit a program, **Break:** quit the block, **Continue:** skip the current iteration, **Return** : quit and return the value to a function.
- ❏ **Continue** keyword in the switch case will give an error.
- ❏ In switch case there can't be two same cases, it will throw a duplicate case error.(97 and char a will give duplicate case error, since char a has the ascii value 97)
- ❏ #define Square(x) x*x, Square (4+5)=4+5*4+5=29, not 81
- ❏ #define msg "rohit #is a\ good boy", all the symbols will be removed while executing.
- ❏ **Local variables** or **static variables** are stored in the **Stack** while **Heap Space** is used by runtime to allocate memory to **Objects**, **JRE classes** and **global variables**. Whenever we create an object, It's always created in the Heap space.
- ❏ There are four storage classes. **auto**, **extern**, **static** and **register**.

Storage classes in C

Storage Specifier	Storage	Initial value	Scope	Life
auto	stack	Garbage	Within block	End of block
extern	Data segment	Zero	global Multiple files	Till end of program
static	Data segment	Zero	Within block	Till end of program
register	CPU Register	Garbage	Within block	End of block