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Learn to Code | How to master coding

Steps to master coding

- 1) Learn the basics
 - 2) Practice every day, incrementally work on harder problems
 - 3) Debug
 - 4) Run, make planned mistakes, compile and debug
 - 5) Do mini fun projects
 - 6) Learn from others / Github
 - 7) Logic building
- * Learn the basics
→ master the fundamentals of that programming

Languages

- Start a code small line like sum addition of 2 numbers, math modules
→ print your name, two string together

o Practice everyday

- & start code regularly and step into a harder problems.

o Debug

- debugging is a technique to find any errors and fix them.
- & debug. understand the code line by line

o Run, make planned mistakes and debug

- & change variable datatype and run. see error, which type of error occurs
- declare int datatype add string variable run. and see error after that fix it
- & In java, C++, rename main and see error

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+ Do mini fun project

- & create menu driven console app
- & create a small mini game
- & fall in love with coding

* Learn from others (github)

- & Search on github about project ideas

and see how others code, and their production code

"Learn from others, Learn from Best"

Logic Building: Necessary

→ Find total expenses for a month?

* create a write program for above question

* think how your brain do this
convert it into coding

steps: declare variables

int food = 5000 #or any user input

int travel = 2000

int others = 4000

int rent = 8000

int total = 0

total = food + travel + others + rent +

printout(total), print(total)

→ Find there is a green color block

black	yellow	white	red	brown	blue	chocolate	green
Ba	Y	W	R	B	B	Cho	Tyre
0	1	2	3	4	5	6	7
orange	yellow						
Ora	Yellow						
9	9						

* think it in mind how we find it (green)

* first how our brain finds it, our eyes

start seeing from first to last if color

find it such that it is at (7th index)
(7th index)

Find means Search
pseudo code :- part

→ Notice / Read

→ take one item at a time

→ compare item : item == green

if yes, found = true

→ not, go to next.

: pseudo code :- Algorithm :-

① Iterate over colors list / Array

→ check if item is green

→ otherwise

continue to next element

→ else, not found

Note :- Iterate any question has ~~not~~ iterate word , it means it has use loops
and check work if else statement

→ count of even numbers in the list ?

[01] [34] [23] [04] [53]

what is even :- any number divided by 2
gives remainder is 0

pseudo code

→ iterate over items in list / Arrays

→ check if item divided by 2 and remainder
is 0 ; if yes, count = +1

→ else odd : oddcount = +1

code: int count = 0;
int arr[] = {22, 4, 6, 8, 10};

// Iterate over elements of arr

```
for(int index=0; index<arr.length; index++) {
    if (arr[index] % 2 == 0) {
        count++;
    } else {
        cout("odd") // or any msg you want
    }
}
```

→ Sort these in ascending order?

01 34 23 04 53

pseudocode

↳ Iterate over elements

↳ compare two elements, if element > another, swap it

→ if all elements in ascending order, don't have to check

Ascending: smallest to highest

Algorithms: Sorting algorithms (Bubble sort)

→ Find a maximum value in a list/array

34, 52, 69, 80, 92.

↳ Iterate over elements;



take variable, highest = first element
→ check arr of element > highest, make
if yes make it highest

same for & minimum value

→ Iterate over elements
→ take variable, lowest = first element
→ check arr of element < lowest
if yes, make it lowest.

For sum of all element

→ Iterate over all element
→ take variable, sum = initial 0
→ sum variable is = to sum + arr of elements
→ return sum

For average of item

→ take variable avg = 0
→ formula avg = sum / nr of elements.
→ return avg

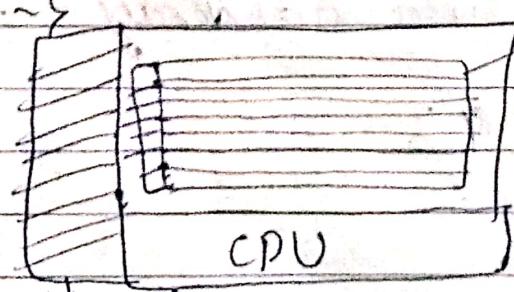
10-2 Variable and Datatypes

Q Why are variables and datatypes

Q what happens without them and with them

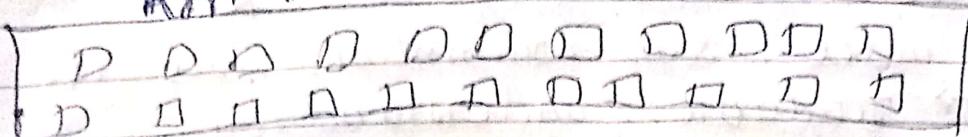
Q What are variables

→ Registers



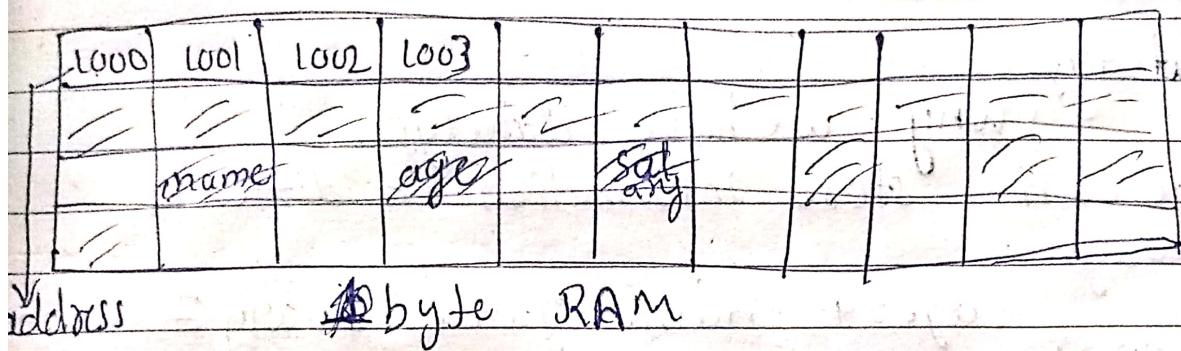
CPU have very small range
of registers

RAM



CPU takes input from RAM and do task. give back to RAM as output

- A variable is like a container that holds data. You can store, change and reuse data using variable



without variables you can think what are address free and which are address allocated
think and write a program for storages

→ why variables exist; answer →

↳ simplicity → Readable

↳ Flexibility & Dynamic Memory Allocation

Datatypes

→ defines that the type of data a variable can hold

ex: int, float, string, Boolean

write a proper name to declare or define a

variable [ex: int a=19; X; int age=19; ✓]

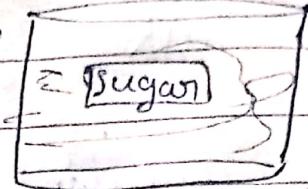
don't we variable like, just
use index, row, column, space, etc.
→ readable, understandable

Jar:
value



Name

variable



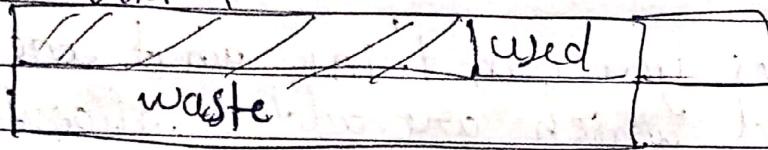
int age = 10 → value
datatype variable

→ Datatypes

Why we have datatypes
we can store information in different ways

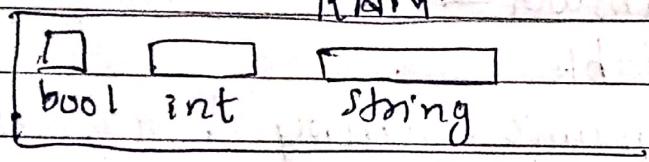
RAM

age = 9, name = Guru, salary = 10000.0



use datatype for save memory

RAM



int → String name = "Basu";
datatype variable → value
(text)

why we need datatype

or efficient use of RAM

• Type checking (statically typed)

• type casting

`age = 40` // 4 byte in RAM

`print(age)` it read 4 byte from RAM

Exception related to memory

→ Array Bound of Exception

→ Buffer Error, Recursion Error, Out of Memory Error

Datatype	Min value	Max value	Number of bit	programming language
bool	0(false)	1(true)	1	py, java, c, c++
char	-128	127	8	c, c++, java
int	-2,147,483,648	2,147,483,647	32	c, c++, java, py
float	$\sim 1.UE-45$	$\sim 3.UET38$	32	c, c++, py, java
long	-9,223,372,036	9,223,372,035	64	c, c++, java
double	$\sim 1.9E-324$	$\sim 1.8ET308$	64	c, c++, java, py

8 bit = 1 byte

1 kb = 1024 bytes

1 MB = 1024 KB

1 GB = 1024 MB

1 TB = 1024 GB

Importance of allocate a datatype to a variables is a very critical and cause a problem if mismatch

In python DataTypes and Variable

name = "Veeresh" # str datatype

age = 18 # int

height = 4.3 # float

large_number = 12345678981011

is_active = True # Boolean

If Collection

lists = [1, 2, 3, 4]

tuples = (1, 2, 3)

sets = {1, 2, 3}

dict = {"key": "value"}

In Java

String name = "Veeresh"

int age = 25;

float height = 5.6f;

boolean isActive = true

short salary = 20000;

double PI = 3.14

char grade = 'A';

byte storage = 1024;