C language

* Created by dennis ritchie at AT & T bell labs in 1972
* B + BCPL = c language

**Flavours of C**  **platform**

-ANSI C -Unix \*

-dynamic c Linux \* most used in industry

-Turbo C MS-DOS

Borland C Windows

Microsoft C windows

Pro c oracle

Objective C Mac

Day 1

-main function

-data types

-variables and constants

-control statements

steps :

1.algo

2.flowchart

3.program

Program:- set of instructions to reach a particular task

Header files

Sample c pprogram:-

#include<stdio.h> // pre processor directive (1st line of code) all # codes

#include<conio.h> //getch() , clrscr() etc

#include<string.h>

#include<graphics.h>

#include<stdlib.h> // for exit functions

#includealloc.h> // memory allocation

#include<ctype.h> // and many more

main()

{

printf(“hello world”);

}

Const float pi=3.14;

#define pi 3.14 // using preprocessor directive

* We can include custom made header files (a program with only functions without main is header file.)

main()

* Entry point of C program is the main ()
* Execution of program starts with main()
* Program can be compiled without main()

When a program is created its stored as i.e background files generated

Name.c - source code(in the c language)

Name.bak -backup code(same as .c file)

Name.obj -object file (intermediate conversion into machine language)

Name.exe -executable file(application)

Compiling a file

Linux / unix:

-------------

First.c

cc first.c -> compiling

./a.out -> running

* Default return type of a function in c is int

I.e main() = int main()

* Void main() returns nothing/null
* Int main() or main() return 0 // return(0);
* Int main() is preferred to void main()

Data types of c

Int %d

Char %c or %s

Float %f

Long int %ld

Double %lf

* Char can take integers.
* I.e char num[3] → 001, int only diplays 1
* **Typecasting** is process of converting one data type to another data type
* 1) implecite typecasting
* 2) explicite typecasting

Example-:explicite typecasting (we do it externally)

#include <stdio.h>

void main()

{

int m,p,c,s;

float avg;

printf("enter the marks of maths, physics and chem ");

scanf("%d%d%d",&m,&p,&c);

s=m+p+c;

avg=**(float)**s/3; // typecasting to float from int

printf("\n the average is %f",avg);

}

ASCII american standard code for international

0 -264 total 265 chaaracters

Implecite typecasting examples:

#include <stdio.h>

#include <stdlib.h>

void main() {

char ch='a';

int val=65;

printf("\n val= %c",val); // self conversion of 65 to ascii character ‘a’

printf("\n ch = %d",ch) ; // 65 to ascii char A

}

I-P-O (strategy input, program, output)

Operators in c

→ arithmetic

* +
* -
* \*
* / (division)
* % (modulus…..remainder)

→ relational

* <
* >
* <=
* >=
* !=
* ==

→ assignment operator

* =

NOTE-: logic for swaping two numbers without temp variable

a=a+b;

b=a-b;

a=a-b;

Program to swap teo nmbs

#include<stdio.h>

void main()

{

int a,b,c;

printf("enter two values a and b");

scanf("%d%d",&a,&b);

c=a;

a=b;

b=c;

printf("%d%d",a,b);

}

Swap program without temp variable

#include<stdio.h>

void main()

{

int a,b,c;

printf("enter two values a and b");

scanf("%d%d",&a,&b);

a=a+b;

b=a-b;

a=a-b;

printf("%d%d",a,b);

}

Escape sequences

\n - new line

\t - new tab (space)

\a -alert

\b -backspace

\\ -\

\” -double quotes eg (printf("\"hello world\"");)

\’ -single quote eg (printf("gitam\'s collage");)

avg=6.123456

If output is 6.123456

We want 6.12 // only two decimal places

Then printf(“%.2f”,avg);

Control statements

→ Conditional control statements

- if

- if else

- else if

→ Case control statements

-switch

### If:-

Checks the condition and executes the statements if it is true

Syntx:-

if(condition)

{ statement; // if using single statement then {} is not necessary

}

Eg-

// check eve or odd

#include<stdio.h>

int main()

{

int a;

printf("enter a number");

scanf("%d",&a);

if(a%2==0)

{

printf("%d is even num",a);

}

if(a%2!=0) // simple if (dosent use else) instead use **else**

{printf("%d is odd number",a);

}

return 0;

}

Elseif:

Use whenevr there are 3 or more options

Syntax:

if(condition1)

{

statement:

}

elseif(cond2)

{

statement;

}

Else

{

statement;

}

Ternary operators ? :

condition ? statement if true : statement if odd

Eg

printf(n%2==0 ? “even” : “odd”);

printf(n<0?”-ve”: n==0 ? “zero” : “positive”)

Q.Check if given letter is vowel or consonant or digit

Q.Given year is leap or not

Q.big among 3 three numbers