

1 REVIEW IN C++ PROGRAMMING

character set

fundamental units. Letters, digits, white spaces and other characters.

Tokens

basic building blocks. KILPO

keywords

reserved words

identifiers

user defined words

literals

constants. Do not change during run. Integer, float, character, string

operators

symbols for operations. Unary, binary, ternary.

Arithmetic, logical, relational

punctuators

special characters like (;)

data types

means to identify the type of data.

1 Fundamental(int, char, float, double, void) and 2 user defined

type modifier

change the size and range of datatype (signed, unsigned, short, long)

expressions

operators + operand (arithmetic, relational, logical)

type conversion

converting from current type to another. Implicit by compiler, explicit by user.

Statements

declaration, input, output, assignment

structure of C++ program

header file

using namespace std;

int main()

body

using namespace std;

group name for cin and cout

control statements

selection, looping

selection statements

if, if else, switch, conditional

looping

while, for, do while

entry controlled

testing at first (for, while)

exit controlled

testing at last (do while).

Four components of loop

initialisation, testing, updation, loop body

nested loop

loop inside a loop

jump statements

program control from one place to another. Return, goto break, continue.

Goto

to transfer anywhere
break to transfer outside the current block
continue skipping the part in loop and next iteration

2 ARRAYS

array collection of same type elements with single name , int ar[10];
traversal accessing each element of an array
gets() consol input function to accept a string
null character ('\0') stored at the end of an array

3 FUNCTIONS

modularization
breaking large programs into smaller programs
modular programming- merits
reduce the size
less errors
less programming complexity
reusability
modular programming- demerits
proper breaking needed
each section must be independent
functions
named units of statements. Two types (predefined, user defined)
predefined function
ready to use functions in header files
consol function(cstdio)
getchar(), putchar(), gets(), puts()
Stream functions(iostream)
get(), getline(), put(), write()
string functions(cstring)
strlen(), strcpy(), strcat(), strcmp(), strcmpi()
Mathematical functions(cmath)
abs(), sqrt(), pow()
Character functions(cctype)
isupper(), islower(), isalpha(), isdigit(), isalnum(), toupper(), tolower()
prototype of functions
declaration of function before calling.
Return type, function name, no and type of arguments
arguments of functions
actual in function calling
formal in function definition
default argument
initialized formal arguments

calling functions

by value	by reference
ordinary variable	reference variable
no change in actual var	change in actual variable
seperate memory	same memory

scope

local, global

4

WEB TECHNOLOGY

Communicatio on the web

client to web server
web server to web server

HTTPS

hyper text transfer protocol secure, use SSL

payment gateway

bridge between merchant server and bank server

web server

server computer with server OS and web server software

data center

physical location of servers and networking system

software port

to conect a client to server to access HTTP etc.

DNS server

database of domain names and IP addresses

static web page

remain same all the time,no database

dynamic web page

content and layout change during run time, database is used

script:-

program inside HTML

client side scripting

and

server side scripting

script at client

script at server

execution in browser

execution in server

to validate data at client

to

use database

user can block

cannot block

browser type affect

doesnt affect

eg. Javascript

PHP

Scripting languages

Javascript- client side, interpreting, inside HTML

ajax- to update parts of a web page

VB script- client side and server side, by Microsoft

PHP- server side scripting, open source, database programming, LAMP,WAMP

ASP- Active server page-server side- only in Window, IIS

JSP- Java server page- server side- sun miccrosystem- use Java- j2EE

Cascading style sheet- describe the formatting of HTML

Three ways

inline - in a HTML tag
Embedded- within head part
Linked- linking of external css file
advantages
reuse- easy for maintenance- easy to understand-
adaptation

Basic concepts of HTML

HTML- created by Tim Berners Lee
tag- tell browser how to format
container tag- having opening and closing tag-
empty tag- without closing tag
attributes- additional information in opening tag

Basic structure of html

```
<HTML></HTML>  
<HEAD></HEAD>  
<TITLE></TITLE>  
<BODY></BODY>
```

HTML tags

<HTML>- starting and ending. Attributes- dir, lang
<HEAD>- title, script, style
<TITLE>- title on title bar
<BODY>- document body
attributes- background, bgcolor, text, link, alink, vlink, left margin, top

margin

<H1> to <H6>- heading tags
<P>- paragraph, attributes- align

- line breaking
<HR>- horizontal line . Attributes- size, width, noshade, color, align
<CENTER>- centering the content

Text formatting tags:-

- bold
<I>- italic
<U>-underline
<S> and <STRIKE>- striking through text
<BIG>- big size
<SMALL>- small size
- bold text
- emphasising the text
<SUB> and <SUP>- subscript and superscript
<BLOCKQUOTE> and <Q>- quotation
<PRE>- displaying preformatted text
<ADDRESS>- displaying the address
<MARQUEE>- scrolling text
attributes- height, width, direction, behaviour, scrolldelay, scrollamount, bgcolor, hspace, vspace

loop,

<DIV>- formatting a block of text
attributes- align, id, style
- font characteristics
attributes- color, face, size

HTML- reserved characters

 space
" double quotation

'	single quotation
&	ampersand
<	less than
>	greater than
©	copyright symbol
™	trademark symbol
®	registered symbol
Comments in HTML-	<!------->
-	inserting images
attributes-	src, width, height, vspace, hspace, align, border, alt

5 WEB DESIGNING USING HTML

Lists

Unordered- ... and
 attributes- type(disc, square, circle)
 Ordered- ... and
 attributes- type(1,i,I,a,A), start
 Definition list
 <DT> and <DL>
 nested list- a list under an item of list

LINKS

Internal- link to a section of same page
 attributes- Name, Href,
 External link to another page
 attributes- href
 Email-linking

Inserting music and videos

<EMBED>- to include music or video
 attributes- src, height, width, alt
 <NOMBED>- if <EMBED> tag not supporting ,content displaying
 <BGSOUND> - background music

<TABLE>

attributes- border, bordercolor, align, bgcolor, background,
 cellpadding- space between cells
 cellspacing- space between content and cell border
 width, height
 frame- table border display
 values- void (no border)
 above, below, hspace, lhs or rhs,

vsides, box or border

Rules- border between cells
 values-none, cols, rows, groups, all

<TR>- rows in a table
 attributes- align, valign, bgcolor
 <TH>- table heading, <TD>- table data
 attributes- align, valign, bgcolor, colspan, rowspan
 <CAPTION>- to give table caption

<FRAMESET> - to divide browser window
 attributes -cols(the no of vertical frames)

rows(no of horizontal frames)
border-thickness of border
bordercolor

<FRAME>- frame inside the frameset

attributes- Src- the page to be loaded

Scrolling- values(yes,no)

noresize

marginwidth and marginheight

Name

Target frame-

hyperlink in one frame and linked frame in another

frame

Nesting of frames-

frameset within another frameset

<NOFRAME>-

to display message if browser doesn't support frame

<FORMS>

container for creating form. Take input from page and send to server

attributes-

action- to give URL of server

Method- method of uploading(get,post)

Target- target window to display the result of a script
(values-blank,self,parent,top,name)

Form controls

<INPUT>

attributes-

type- determines the control type. Values are-

text- text box

password- coded symbols

checkbox- yes or no values

radio- to select a single values

reset- to clear all

submit- to submit all the entries

button- to call functions

name- name of control to use server side

value- to give initial value

size- width of text and password.

Maxlength-maximum no. Of characters in text and password

<TEXTAREA>- multiple lines of text

attributes-

name- name of control

rows- no of lines

cols- no of columns

<SELECT>- list of options

attributes-

name- name of control

size- list or dropdown list-(if 1 -dropdown)

multiple- to select more than one

selected- for default selection

value- value other than selection

<FIELDSET>-

grouping related form data.

<LEGEND>-

caption for fieldset

HTML5

new tags- <VIDEO>, <AUDIO>, <CANVAS>, <HEADER>, <FOOTER>, <ARTICLE>, <SECTION>, <OUTPUT>, <DETAILS>, <FIGURE>, <FIGCAPTION>, <PROGRESS>, <METER>

6 CLIENT SIDE SCRIPTING -JAVA SCRIPT.

<SCRIPT>- to include script code

attributes-

language- name of script language

document.write()- function to print a text in the body

javascript engine- enables javascript execution in a browser

Function in Javascript-

function function name()

```
{  
}
```

Data types(basic datatypes in Javascript)

Number- all nos.

String- any combination of characters

boolean- true and false

Variables- using var keyword

eg- var x,y;

Operators-

arithmetic, assignment, relational, logical

string additional

```
var x, y;
```

```
x="you are";
```

```
y="welcome";
```

```
z=x+y;
```

Control structure

if, switch, for, while

Built in functions

alert()- display message

isNaN()- number or not

toUpperCase()- return uppercase

toLowerCase()- return lowercase

charAt()- character at a position

properties

length- length of the string

Events

onClick, onMouseEnter, onMouseLeave, onKeyDown, onKeyUp

Ways to add scripts

Inside<body>- load with HTML . Visual delay

Inside <head>- fast execution

External -file saved as .js and linking

7 WEB HOSTING

Web hosting- giving storage space in web server

web hosts- companies of web hosting

types of web hosting

shared- many websites sharing single web server, RAM and CPU.
Cheaper, easy to use, slow.

Dedicated- a web server for a website
good performance, expensive

co-location- placing dedicated web server in service providers facility

Virtual private Server- a shared web server which feels dedicated virtually

buying hosting space- consider- memory space, supporting softwares, database support

Domain name registration
decide a domain name
check for availability in WHOIS database
fill information for WHOIS database
WHOIS information
name, address, phone no., email, etc.
pay the annual fee

ICANN- Internet Corporation for Assigned Names and Numbers

A record- IP address of a web server connected to a domain name

FTP client- software to transfer file to web server
SFTP -secure shell FTP

Free hosting- hosting without charge
eg- site.google.com, yola.com

CMS- content management system
s/w used to create, admin and publish websites
features
security
need less technical knowledge
templates
reduce repeat coding
economical

Responsive web design
designing web pages able to adjust to the screen size of the device
using
flexible grid layout- set entire page size
flexible images- set image/video dimensions
media queries- set different styles

8 DATA BASE MANAGEMENT SYSTEM

Draw backs of conventional file management system

- duplication of data
- data inconsistency
- in accuracy
- less security
- not sure of data consistency if system crash
- no standard

Database- organized collection of interrelated data

DBMS- programs for managing database

Advantages of DBMS

- controlling data redundancy- centralized databases
- data consistency- by controlling data redundancy
- efficient data access-

| | |
|----------------------|--------------------------------------|
| data integrity- | by standard rules and error checking |
| data security- | |
| sharing- | |
| standard enforcement | |
| crash recovery- | |

Components of DBMS

| | |
|-----------|--|
| Hardware- | computers and supporting devices |
| software- | DBMS, application programs and utilities |
| Data- | operational data and meta data |
| | field- smallest unit |
| | record- collection of fields |
| | file- collection of records |
| Users- | users of database |

| | |
|-------------------|---|
| Procedure- | instruction and rules related to database |
| Data abstraction- | hiding of complexity from users |
| three levels | |

| | |
|-------------|----------------------------|
| physical- | how data is stored |
| logical- | what data is stored |
| view level- | the way user view the data |

| | |
|--------------------|---|
| Data independence- | modification data structure in one level without affecting higher level |
| physical- | modifying physical level without affecting logical level |
| logical- | modifying logical level without affecting view level |

Users of database

| | |
|-------------------------|---------------------------------------|
| DBA- | who control the database |
| | duties- design of structure |
| | security |
| | data availability |
| Application programmer- | who connect database through programs |
| Sophisticated user- | who know about dbms well |
| Naive user- | common users |

| | |
|----------------------|--------------------------------|
| Relation data model- | collection of tables |
| entity- | a person or a thing |
| Relation- | data in tabular form |
| Tuple- | the row |
| Attribute- | column |
| Degree- | No of attributes or columns |
| Cardinality- | no of rows |
| Domain- | pool of values of a column |
| schema- | structure of databases |
| instance- | is group of rows in a relation |

| | |
|----------------|--|
| Keys- | way to identify a row in a relation uniquely |
| composite key- | having more than one column |
| candidate key- | column or columns that can be a key |
| Primary key- | chosen key for a table from candidate keys |
| Alternate key- | candidate key that is not primary key |
| Foreign key- | primary key in another table |

Relational algebra

| | |
|-----------------|--|
| Select- | select rows on a condition |
| Project- | select columns |
| Union- | all tuples in either or both of the two relation |
| intersection- | all tuples in both of two relational |
| set difference- | tupels in first and not in second |

cartesian product- all possible combination of tuples

9 STRUCTURED QUERY LANGUAGE

| | |
|----------------------------|---|
| SQL- | standard database language |
| features- | database language
simple,flexibl,pwerful
comand for table modification and data usage
databases uses for operation
non procedural language
data security
concept of views |
| Components | |
| DDL- | data definition language(defining structure)
CREATE, ALTER, DROP |
| DML- | Data manipulation Language
SELECT, INSERT, UPDATE ,etc. |
| DCL- | Data control language
GRANT, REVOKE |
| Creating database- | create database databasename; |
| Opening database- | Use databasename; |
| Data types- | Numeric
int, dec
String
char- declared size
varchar- actual size
Date, time |
| Rules for naming tables- | contain letters
one letter must
not contain white space, symbols
no keywords |
| Create table query- | CREATE TABLE ... |
| Constraints- | ruls on entering data in a column |
| column constraints- | constrains on single columns |
| not null- | never empty |
| auto-increment- | |
| unique - | no two rows have same values |
| primary key | |
| default | setting default values-blank |
| table constraints | |
| | constraints on group of columns |
| Structure view of a table- | DESC tablename; |
| inserting data- | INSERT INTO.. |
| Retrieving - | SELECT ...FROM |
| Eliminating duplicate- | SELECT DISTINCT |
| condition | WHERE |
| Pattern matching | LIKE %, LIKE '___' |
| Sorting | ORDER BY |
| Aggregate functions | |
| SUM()- | total of column values |
| AVG()- | average of column values |
| MIN()- | smallest in the column |

| | |
|----------------------|---------------------------|
| MAX()- | Largest value |
| COUNT()- | number of non null values |
| COUNT(*)- | number of row |
| grouping of records- | GROUP BY |
| HAVING- | condition in GROUP BY |
| Modifying data- | UPDATE....SET |
| changing table - | ALTER TABLE |
| | ADD, MODIFY, DROP, RENAME |
| Deleting rows- | DELETE FROM... |
| Remove table- | DROP TABLE ... |
| VIEW- | virtual table |
| | CREATE VIEWAS SELECT |

10 ENTERPRISE RESOURCE PLANNING

Enterprise Resource Planning

Fully integrated business management system using a centralized database

Enterprise with little communication between departments

An enterprise with Centralised database

Functional units

Financial Module

Manufacturing module

Production planning module

HR module

Inventory control module

Purchasing

Marketing

Sales and distribution

Quality management

Business Process Re-engineering

Analysis and redesign of work flow within an enterprise

Why BPR?

Efficient time management

Reduced cost

Effective utilization of resources

BPR life cycle

Identify Business Process

Analysis Current Processes

Design and Document Revised Processes

Implement Revised Process

Why BPR before EPR

“Conducting BPR before ERP avoids unnecessary modules from software”

Implementation Phases of ERP

Pre evaluation screening

Package selection

Project Planning

Gap Analysis

BPR

Installation and Configuration

Implementation Team Training

- Testing
- Going Live
- End User Training
- Post Implementation
- ERP Solution Providers/ ERP Packages
 - Oracle
 - SAP(Systems, Application and Products)
 - Odoo(Old name: OpenERP)
 - Microsoft Dynamics
 - Tally ERP
 - Others: OperBravo, Infor,sage,ERP5,WebERP.....
- Benefits
 - Improved Resource utilization
 - Better customer satisfaction
 - Provide accurate information
 - Decision making capability
 - Increased flexibility
 - Information integrity
- Risks of ERP
 - High Cost
 - Time Consuming for implementation
 - Requires additional trained staff
 - Operational and maintenance issues
- ERP related technologies
 - Product Life Cycle Management(PLM)
 - “Managing the entire life cycle of a product”
 - Customer Relationship Management(CRM)
 - “Comprehensive approach for creating,maintaining and expanding customer relationships”
 - Management Information System(MIS)
 - “Integrated system of man and machine for providing the information”

11 TRENDS AND ISSUES IN ICT

Mobile computing- computing and net use in motion

Generation in mobile computing

- 1G- in 1980. analog. Voice only
- 2G- digital. Data service. MMS. Use GSM and CDMA.
 - GSM- global standard circuite switched networ
 - two technologies- GPRS- general packet radio service
 - EDGE- Enhanced data rates

for GSM evolution

- 3G- CDMA- Code Division Multiple Access- severel signals at a time
- 4G- voice and data. Wireless broadband. WCDMA
- 5G- Long Term Evolution. ultra broadband.OFDMA. Quality than TV
- next step. More connection. Less cost. Less energy.

Mobile Communication Services

- SMS- text messages. SS7 protocol is used
- MMS- multimedia message.
- GPS- finding global position using satellite.
- Smart cards- plastic cards with computer chip.

Mobile operating system

Android- linux based.
development kit.

Maintained by OHA. Touch input. Software
Apache licence. Apps.

Information security-

Intellectual property right-

two types- industrial property-

exclusive right over a creation of mind

right on industrial and agricultural products

patents-

right for an invention

Trademark-

diistinct sign for goods

Industrial design-

visual design of an object

Geographical indication-

Copy right-legal right for a work

Infringement-

unauthrised use of intellectual propertie

patent infringement

trademark infringement

copyright infringement

Cyber space-

virtual internet environement

Cyber crimens-

crimes using computer or computer networking

Against individual

1 identity theft-

using others identity

2 Harassment-

posting humiliating comments in net

3 Impersonation -

pretend to be another on net.

4 Violation of privacy

5 Dissemination of obscence material

Against Property

1 credit card fraud

2 intellectual property theft

3 internet time theft

Against Government

1 Cyber terrorism-

cyber attack against a computer network.

2 website defacement-

hacking

3 attack against e-gov. Sites

cyber ethics

cyber law

IT act 2000

