

puts() consol output function to display a string

null character ('\0')
stored at the end of an array

3 FUNCTIONS

functions

named units of statements. Two types (predefined, user defined)

predefined function

ready to use functions in header files

consol function(cstdio)

getchar()- returns the character that is input through the keyboard
putchar()- displays the character given as the argument
gets()
puts()

Stream functions(iostream)

get()- accept a single character or multiple characters (string) through
the keyboard.
Getline()- accepts a string through the keyboard.
Put()- display a character constant
write()- displays the string contained in the argument

string functions(cstring)

strlen()- to find the length of a string
strcpy()- to copy one string into another.
strcat()- to append one string to another string
strcmp()- to compare two strings
strsmpi()- to compare two strings ignoring cases.

Mathematical functions(cmath)

abs()- to find the absolute value of an integer.
Sqrt()- to find the square root of a number
pow()- to find the power of a number.

Character functions(cctype)

isupper()- to check whether a character is in upper case or not.
Islower()- to check whether a character is in lower case or not.
Isalpha()- to check whether the given character is an alphabet or not.
Isdigit()- to check whether the given character is a digit or not.
Isalnum()- to check whether a character is alphanumeric or not.
Toupper()- to convert the given character into its uppercase
tolower()- to convert the given character into its lowercase

calling functions

by value

ordinary variable as formal
Actual parameters may be constants,
variables or expressions.

no change in actual variable
separate memory

by reference

reference variable as formal
Actual parameters will be variables
only.

change in actual variable
same memory

4 WEB TECHNOLOGY

website is a collection of web pages

static web page

remain same all the time, no database

dynamic web page

content and layout change during run time, database is used



Static web page

v/s

Dynamic pages

content and layout fixed

never use database

run on browser. no server side application

easy to develop

content and layout may change during run time

database is used

runs on the server side application

require programming skills

script:- program code inside HTML. Two types client side and server side.

client side scripting

v/s

server side scripting

script is copied to client browser

execution is in browser

used to validate data at client

user can block scripting

Type and version of the browser affect
the working

eg. Javascript

script remains at server

execution in server and result is
displayed in the client browser

used to connect to database

cannot be blocked by user.

browser doesnt affect

eg:PHP

Basic concepts of HTML

HTML- contains tags and attributes. It is created by Tim Berners Lee

tag- tell browser how to format. Two types

container tag- having openig and closing tag. Eg: <BODY>..</BODY>

empty tag- without closing tag Eg:
, <HR>

attributes- additional information in opening tag

Basic structure of html

<HTML></HTML> -starting and ending

<HEAD></HEAD>- information about the document

<TITLE></TITLE> - title of the page

<BODY></BODY>- to define the contents

Essential HTML tags

<HTML>- starting and ending of a web page.

Attributes- dir- direction of the text. values- ltr, rtl
lang- language values- En, Fr, Hi, etc.

<HEAD>- contains title, script used and style definition etc.

<TITLE>- title on title bar

<BODY>- document body

Attributes-

background- to set an image as a background . <BODY background="sky.jpg">

bgcolor- to set a background color. <BODY bgcolor="grey">
values in two ways . Color name or hexa number(eg. "#303030")

text- color of the text content in the page <BODY text="red">

link- color of the hyperlinks

alink color of the active link

vlink color of visited link

left margin, topmargin

eg:- <BODY link=yellow alink= red vlink=blue leftmargin=20 topmargin=20>

Heading tags

<H1> to <H6>- six level of heading tags <H1> is biggest and <H6> is smallest

attribute- align (values: left, right, center)

<P>....</P> paragraph, attributes- align (values: left, right, center, justify)

- line breaking

Text formatting tags:-

- bold

<I>- italic

<U>-underline

<S> and <SRIKE>- striking through text (welcome)

<BIG>- big size

<SMALL>- small size

- bold text (same as)

- emphasising the text (same as <I>)

<SUB> and <SUP>- subscript and superscript

eg:- H_2SO_4 $H₂SO₄$
 A^2+B^2 $A²+B²$

<BLOCKQUOTE>- to indent the content

<Q>- double quotation mark.

<PRE>- displaying preformatted text

<MARQUEE>- scrolling text

attributes- height, width, direction, behaviour, scrolldelay, scrollamount, loop,
bgcolor, hspace, vspace

- font characteristics

attributes- color, face, size

- to insert images

attributes- src, width, height, vspace, hspace, align, border, alt

eg:-

5 WEB DESIGNING USING HTML

Lists (three type)

Unordered list- bullets or other graphics for items

tags: ... and

attributes- type. Values: disc, square, circle (default value:disc)

Eg:- HTML code for following list

- RAM
- HARD DISK
- MOTHER BOARD
- PROCESSOR

```
<HTML>
<HEAD>
<TITLE> Unordered Lists </TITLE>
</HEAD>
<BODY >
  <UL>
    <LI> RAM </LI>
    <LI> HARD DISK </LI>
    <LI> MOTHER BOARD </LI>
    <LI> PROCESSOR </LI>
  </UL>
</BODY>
</HTML>
```

Ordered list- items in numerical or alphabetical order

tags: ... and

attributes- type (values:1,i,I,a,A), start (to give starting no or letter)

Eg:- HTML code for following list

1. Registers
2. Cache
3. RAM
4. Hard Disk

```
<HTML>
<HEAD>
  <TITLE> Ordered Lists </TITLE>
</HEAD>
<BODY >
  <OL>
    <LI> Registers </LI>
    <LI> Cache </LI>
    <LI> RAM </LI>
    <LI> Hard Disk </LI>
  </OL>
```



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</BODY>
</HTML>

Definition list- list of terms and definition

tags: <DL>....</DL>, <DT> and <DD>

Links(Hyperlink) : is a text or an image in a webpage that allow to move to another page or to other sections in a page by clicking on it. Two types of links

Internal- link to a section of same page

Tag: <A>...

attributes- Name, Href

External link to another page

Tag: <A>...

attributes- href (to specify the referred page)

Eg:-

Creating tables in a web page

Important tags: <TABLE>, <TH>, <TR>, <TD>

<TABLE>- it is a container tag

attributes-

border- thickness of the border line. Zero value – no border

bordercolor- color of table border

align- table position inside window. Values : left, right, center

bgcolor- background color of the table

background- background image for the table

cellspacing- space between cells

cellpadding- space between content and cell border

width & height- width and height of table

frame- table border display

values:- void- no border

above- border on top only

below- border on bottom only

hsides- border on top and bottom

lhs or rhs- border left or right

vsides- border on right and left

box or border- border on all sides

Rules- border between cells

values:- none- no rules

cols- rules between columns only

rows- rules between rows only

groups- rules between row groups and column groups

all- between all rows and columns

<TR>- rows in a table

attributes- align, valign, bgcolor

<TH>- table heading, <TD>- table data

attributes- align, valign, bgcolor,

colspan- no of columns occupied by a cell

rowspan- no of rows occupied by a cell

<CAPTION>- to give table caption

Eg:- Code for the following table.

| ROLL NO. | NAME |
|----------|-------|
| 1 | Aliya |
| 2 | Arun |

```
<HTML>
<HEAD>
  <TITLE> Html Tables </TITLE>
</HEAD>
<BODY>
  <TABLE Border="1">
    <TR>
      <TH>Roll No</TH>
      <TH>Name</TH>
    </TR>
    <TR>
      <TD>1</TD>
      <TD>Aliya</TD>
    </TR>
    <TR>
      <TD>2</TD>
      <TD>Arun</TD>
    </TR>
  </TABLE>
</BODY>
</HTML>
```



<FORMS>

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

Form controls

<INPUT>

attributes-

type- determines the control type. Values are-

- text- to display text box
- password- to display 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

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

Data types(basic datatypes in Javascript)

Number- all numbers integer and float.
 String- any combination of characters
 boolean- true and false value

Variables- **var keyword** is used to declare all type of variables.

eg- var x,y;

Operators-

Arithmetic operators

| Operator | Description | Example | Value of y | Result (x) |
|----------|---------------------------------|--------------------|------------|------------|
| + | Addition | x = y + 10 | 15 | 25 |
| - | Subtraction | x = y - 10 | 15 | 5 |
| * | Multiplication | x = y * 3 | 15 | 45 |
| / | Division | x = y / 2 | 15 | 7.5 |
| % | Modulus
(division remainder) | x = y % 2 | 15 | 1 |
| ++ | Increment | x = ++y
x = y++ | 15
15 | 16
15 |
| -- | Decrement | x = --y
x = y-- | 15
15 | 14
15 |

assignment operators

| Operator | Description | Example | Value of a | Value of b | Result (a) |
|----------|-------------------------|---------|------------|------------|------------|
| = | Assignment | a = b | 10 | 3 | 3 |
| += | Add and assignment | a+=b | 10 | 3 | 13 |
| -= | Minus and assignment | a-=b | 10 | 3 | 7 |
| *= | Multiply and assignment | a*=b | 10 | 3 | 30 |
| /= | Divide and assignment | a/=b | 10 | 3 | 3.33 |
| %= | Modulus and assignment | a%=b | 10 | 3 | 1 |

relational operators

| Operator | Description | Example | Value of a | Value of b | Result |
|----------|--------------------------|---------|------------|------------|--------|
| == | Equal to | a==b | 10 | 3 | false |
| != | Not equal to | a!=b | 10 | 3 | true |
| < | Less than | a<b | 10 | 3 | false |
| <= | Less than or equal to | a<=b | 10 | 3 | false |
| > | Greater than | a>b | 10 | 3 | true |
| >= | Greater than or equal to | a>=b | 10 | 3 | true |

logical operators

| Operator | Description | Example | Value of a | Value of b | Result |
|----------|-------------|---------|------------|------------|--------|
| && | AND | a && b | true | false | false |
| | OR | a b | true | false | true |
| ! | NOT | !a | true | | false |

string addition operator

```
var x, y;  
x="you are";  
y="welcome";  
z=x+y; (the z will contain "you are welcome")
```

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 |



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7 WEB HOSTING

Web hosting- giving storage space in web server for websites
web hosts- companies of web hosting

types of web hosting

shared- many websites sharing single web server, RAM and CPU.
Merits:- Cheaper, easy to use, slow.
Demerits:- shared bandwidth slow the service
Dedicated- a web server and its resources 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
eg:- Vmare, Virtualbox, Free VPS etc.

FTP client- software to transfer file to web server

SFTP -secure shell FTP

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

8 DATA BASE MANAGEMENT SYSTEM

Database- organized collection of interrelated data

DBMS- programs for storage, retrieval and managing database

Advantages of DBMS

controlling data redundancy- all users use centralized databases
data consistency- in centralized database updates are done in one place
efficient data access-
data integrity- by standard rules and error checking
data security- using password and other technics
sharing- several users use same database
standard enforcement
crash recovery- DBMS use some mechanism to protect data from crashes.

Components of DBMS

Hardware- computers ,storage devices ,network devices and other supporting devices
software- DBMS, application programs and utilities
Data- operational data and meta data (meta data-data about data)
field- smallest unit (eg. ad.no, name)
record-collection of fields (eg. Details of a student)
file- collection of records (eg. Details of students in a class)
Users- users of database(DBA, programmer, sophisticated user and naive user)
Procedure- instruction and rules related to database

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 from which actual values appear in 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- set of one or more attributes that can uniquely identify tuples in a relation
 Alternate key- candidate key that is not primary key
 Foreign key- a key in a table that is a 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- tuples in first and not in second
 cartesian product- all possible combination of tuples

9 STRUCTURED QUERY LANGUAGE

SQL- standard database language

Components of SQL

DDL- data definition language(defining structure)
 CREATE, ALTER, DROP
 DML- Data manipulation Language
 SELECT, INSERT, UPDATE ,etc.
 DCL- Data control language
 GRANT, REVOKE

Data types-
 Numeric
 int, dec
 String
 char- use of declared size
 varchar- use of actual size
 Date, time



Constraints- rules 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

Use of Commands

CREATE TABLE – to create table
 DROP TABLE - to remove a table from the database
 INSERT INTO- to insert a raw into the table
 SELECT ...FROM- to retrieve data from the table
 UPDATE....SET - to modifying data in a table
 DELETE FROM- to delete raw from the table

10 ENTERPRISE RESOURCE PLANNING

Enterprise Resource Planning

Fully integrated business management system using a centralized database

Functional units

- Financial Module
- Manufacturing module
- Production planning module
- HR module
- Inventory control module
- Purchasing
- Marketing
- Sales and distribution
- Quality management

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



Mobile Communication Services

SMS- (Short Message Service) .used to send text messages. SS7 protocol is used

MMS- multimedia message.

GPS- finding global position using satellite. Used in vehicle tracking, oil exploration, atmospheric studies etc.

Smart cards- plastic cards with computer chip that stores and transacts data. SIM card also use smart card tech.

Mobile operating system

A mobile OS manages the hardware, multimedia functions, Internet connectivity, etc. in a mobile device. All the application programs run on it. Popular mobile operating systems are Android from Google, iOS from Apple, BlackBerry OS from BlackBerry and Windows Phone from Microsoft.

Cyber crimes- crimes using computer or computer networking

Against individual

- 1 identity theft- using others identity informations.
- 2 Harassment- posting humiliating comments on gender, race, religion, nationality at individuals in social media (cyber stalking).
- 3 Impersonation - pretend to be another on net.
- 4 Violation of privacy- intrusion into the personal life of another without a valid reason.
- 5 Dissemination of obscene material- . The distribution and posting of obscene material like pornography is one of the important cyber crimes today.

