DESIGN AND DEVELOPMENT OF LIBRARY WEBSITE: A COMPARATIVE STUDY OF COMMERCIAL & F/OSS TOOLS

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Abstract:-Competition to do better in the age of ICT (Information and Communication Technology) and the changing mindset of library users it is the question of survival for the LIS (Library and Information Science) professionals. LIS professionals have to come forward with ICT and develop their working and promoting the library services according to user's requirement/ demand. Library website is the key for the LIS professionals to promote the library and its services as per the demand of present era. Design and development of library website with the help of proprietary/commercial software is not an easy task for the libraries which are facing financial crunch. The present comparative study of graphic and web designing tools/software, Various Proprietary/Commercial and Free/Open Source Software (F/OSS) aims to explain and develop various check points such as price, hardware requirement, platform etc for evaluation of these software. Simultaneously, the pros and cons of these designing tools are explained which help the LIS Professionals and others to draw a parallel line with the help of choosing required software in low cost with maximum feature. The data is collected from various sources such as websites, various articles in the relevant filed and arranged in a manner that can be analyzed and presented in tabular form to make understand with less effort.

Keywords: ICT, F/OSS, Adobe Software, Comparative Study of Website Designing Tools, Library Website.

1.0 Introduction: With the advent of ICT (Information and Communication Technology) and changing mindset and actual need of marketing of LIS Products and services, it becomes essential for every library to have its own website. "Library website is nothing but a two way communication platform where Librarian tells something about library itself with lot of information like; resource availability, accessibility, timings, staffs, rules & regulations which help users to use library and its resources with comfort and at the same time librarian get suggestions from users side which helps librarian to short out the lacunas which makes their users uncomfortable. It works like a tool for librarian as well as the users. Library website can be access with the help of internet or World Wide Web (also known as WWW and W3) locally and globally and 24x7x365. Library website can be treated as marketing tool for LIS product and services it also helps to announce its services and activities to its user". (Kumar & Jha, 2017)

Design and development of library website is possible with the help of commercial software but the cost is very high which is a big obstacle for those libraries which are already facing financial problem. To short out the financial crunch and also fulfill the demand of present ear it is the best way to opt F/OSS (Free and Open Source Software) for the development of its own website and make a parallel line. Choosing a good F/OSS is not an easy task and for that comparative study of different types of F/OSS with detailed features is very important. Comparison is the methods by which any one is able to explicating or utilizing the tacit knowledge or tacit attitudes. Study through comparative methods is often used with the development of branch of science. It helps the researcher to climb from the level of exploratory case studies to a more advance level of general theoretical models, invariant, such as causality or evolution

URL: http://www2.uiah.fi/projekti/metodi/172.htm

According to online Collins dictionary, "A comparative study is a study that involves the comparison of two or more things of the same kind."
URL: https://www.collinsdictionary.com/dictionary/english/comparative

There are two different styles of comparative study

1. Descriptive Comparison aims at describing and perhaps also explaining the invariances of the objects. It does not aim at generating changes in the objects, on the contrary, it usually tries to avoid them.
2. A special style of research is needed when the aim is not just to detect and explain but also to improve the present state of the object or to help improving or developing similar objects in the future. This is the technique of Normative Comparison.
   URL: http://www2.uiah.fi/projekti/metodi/172.htm

There is only difference between descriptive and normative styles of comparison are that normative analysis criteria are evaluative which deal with "satisfaction" and "usefulness" etc. The final goal of the study is not only to find out the best among the alternatives but to improve it as well.

To keep in view of above problems authors tried to compare different types of Proprietary/Commercial Software and Free/Open Source Software for website designing tools with detailed features which will help the LIS (Library and Information Science) Professionals to select the best software which help them to design and develop of library website at very low cost. This study is also explains the pros and cons of the each software used in this paper.

The comparative study of the software is divided in the two parts as show in table:-

Proprietary/Commercial Software	Free/Open Source Software
Raster/Vector Image Graphics Software	
1. Adobe Photoshop CS5	1.GIMP, 2.Krita, 3.Pixlr (Raster Graphics Software)
1. Adobe Illustrator CS5, 2. CoralDraw X8	1. Inkscape, 2.Creative Docs. NET 3.x , 3. Karbon (Vector Graphics Software)
Web Designing and Development Tool Kit	
1. Adobe Flash CS5	1. OpenLaszlo 4.9.0, 2. OpenOffice Impress 3.0
2. Adobe Dreamweaver CS5, FrontPage	1. Aptana Studio, 2. KompoZer

2.0 Objectives of the Study:

The aims and objectives of this study are:

> To identify the best tool for designing the library website
> To demonstrate knowledge on different website designing tools
> To understand the feature of different website designing software
> Comparative analysis of Proprietary/Commercial Software and Free/ Open Source Software of website tools
> To enable the LIS professionals to chose/select best website designing tools

3.0 Scope and Limitation: In this paper, a comparative study is being done on different software which is helpful in library website design such as Raster/Vector Image Graphics Software (Proprietary/Commercial V/s Free/Open Source Software) and Web Designing and Development Tool Kit (Proprietary/Commercial V/s Free/Open Source Software). Comparison in tabular form is done which help the LIS professionals to understand the various check points such as Developer, Current version, Type of license, Operating system, Web server, Language/Support and sustainability, Database, Support format, Price, Year, Service & Support, Security, Standards, Reliability, URL (Uniform Resource Locator) and pros and cons of software. This paper is limited to 07 Proprietary/ Commercial Software and 11 Free/ Open Source Software.

4.0 Methodology: During writing this paper a systematic analysis of the comparative method used. This paper focus on both, the limitations and pros and cons of software used in website building. Authors tried their best to include maximum comparative point which help LIS Professionals to pick excellent tools for websites design

5.0 Comparative Study of Raster Image Graphics Software:

Comparison of Raster Image Graphics Software			
	Proprietary/Commercial Software	Free/Open Source Software	
Standards	**Adobe Photoshop**	**GIMP**	**Krita**	**Pixlr**
Current Version	Adobe Photoshop CC	GIMP 2.8.22	Krita 3.2.0	Pixlr 1.1.0
Developer	Adobe Systems	The GIMP Development Team	KDE project	Autodesk
Features	✓ Use the Touch Bar with Photoshop ✓ Jump-start your creative projects ✓ Comprehensive search ✓ OpenType SVG fonts ✓ Select And Mask workspace ✓ Face-Aware Liquify ✓ Creative Cloud Libraries ✓ Properties panel improvements ✓ Work with Adobe Experience Design CC (Preview) https://helpx.adobe.com/in/photoshop/using/whats-new.html	✓Customizable Interface ✓Photo Enhancement ✓Digital Retouching ✓Free to use GIMP, for any purpose ✓Free to distribute GIMP ✓GIMP works and change it ✓Distribute changed versions of GIMP	✓ User Interface ✓ Brush Stabilizers ✓ Pop-up Palette ✓ Brush Engines ✓ Wrap-around mode ✓ Resource Manager ✓ Drawing Assistants ✓ Mirroring Tools ✓ Layer Management ✓ OpenGL Enhanced ✓ PSD Support ✓ HDR Support	✓Keep in mind that .pxd is the only format that will preserve layers for editing later. ✓Pixlr Editor has its own file format called PXD (which preserves image layers for future editing)
Hardware requirement	Window: ✓Intel® Core 2 or AMD Athlon® 64 processor; 2 GHz or faster processor ✓Microsoft Windows 7 with Service Pack 1, Windows 8.1, or Windows 10 ✓2 GB of RAM (8 GB recommended) GB of available hard-disk space for 32-bit installation; 3.1 GB of available hard-disk space for 64-bit installation; additional free space required during installation (cannot install on a volume that uses a case-sensitive file system) ✓1024 x 768 display (1280x800 recommended) with 16-bit color	✓Stable version takes 1-2 hours on a PPro 200 or K-6 200 with 64 megs of RAM ✓On a P4 or Athlon with 256 megs of RAM ✓Linux kernel 2.2 compile (for GNU/Linux systems of course)	**Recommended:** ✓OS: Windows 7 SP1, Windows 8.1, Windows 10 ✓Processor: 2.0GHz+ Quad-core CPU ✓Memory: 4 GB RAM ✓Graphics: Discrete graphics card (nVidia, AMD) ✓Storage: 300 MB available space ✓Additional Notes: Graphics -tablet recommended. Actual system/video memory requirements vary depending on image size.	Recommended: ✓Windows®8.1 (32-bit, 64-bit) ✓1 GHz CPU or faster Intel or AMD processor and 1GB of memory (32-bit) or 2GB of memory (64-bit) ✓450 MB hard disk space ✓Mouse, touchpad, or touch screen ✓1024 x 768 screen resolution

	and 512 MB of dedicated VRAM; 2 GB is recommended* ✓OpenGL 2.0–capable system ✓Internet connection and registration are necessary.https://helpx.adobe.com/photoshop/system-requirements.html		http://store.steampowered.com/app/280680/Krita_Gemini/	
License Type	Commercial	GIMP is free software under General Public License v3 (Can be used commercially)	Krita is a **FREE** and open source	Fee
Operative System/Platform	Windows, MacOS, Cloud Based	GNU/Linux; Microsoft Windows (XP SP3, Vista, 7, 8); Mac OS X (10.6 and newer); Sun OpenSolaris; FreeBSD	Windows, GNU/Linux, Mac OSX	Windows 7, Mac OS
Price	Price by Amazon $119.88 (Prepaid Membership 12 Month)	Free	FREE and open source	Free
Service & Support	Beginner's Guide, User Guide, Tutorials, Community Form, Enterprise support, Teams support, Education support, Download and install, Adobe learn, adobe support etc https://helpx.adobe.com/support.html	https://helpx.adobe.com/support.html	Stichting Krita Foundation Korte Assenstraat 11 7411JP Deventer, the Netherlands. foundation@krita.org	https://get-support.softonic.com/customer/portal/emails/new
Support Languages	Dansk,Deutsch,English,Español,Français, Français,Hebrew,Hungarian, Italiano, Nederlands, Norwegian, Polish etc https://helpx.adobe.com/in/photoshop/system-requirements.html	No information found.	British English, American English, Danish, French, Hindi, etc https://docs.krita.org/KritaFAQ	British English, American English, Danish, French, Hindi, etc http://pixlr.com/blog/support/what-are-my-language-options/
Supporting Formats	**Audio import formats:** AAC, AIFF, M2A, M4A, MP2, MP3 **Video import formats:** 264, 3GP, 3GPP, AVC, AVI, F4V, FLV, MOV (QuickTime), MPE, MPEG1, MPEG4, MPEG2 if a decoder is	TIFF, JPEG, GIF, PNG, PSD, TGA, BMP, XWD, XPM, PIX, CEL, MNG, PPM, PCX	**Save to:** Krita Document, OpenRaster document, PSD image, PPM, PGM, PBM, PNG, JPEG-2000, JPEG, BMP Windows, XBM,	✓ PNG ✓ JPEG (or JPG) ✓ BMP ✓ TIFF

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	installed (for example, with an Adobe video suite), MTS, MXF, R3D, TS, VOB **Video export formats:** DPX, MOV (QuickTime), MP4 **Graphic file formats:** Photoshop PSD, Large Document Format PSB, BMP, Cineon, CompuServe GIF, Photoshop DCS 1.0, Photoshop DCS 2.0, DICOM, Photoshop EPS, IFF format, JPEG, JPEG2000, OpenEXR, PCX, Photoshop PDF, Pixar, PNG, Portable Bit Map, Photoshop Raw, Scitex CT, Targa, TIFF, Wireless Bitmap, Photoshop 2.0 (Mac only), PICT (read only), PICT Resource (Mac only, can open only), Radiance **3D-related formats:**3D Studio (import only), DAE (Collada), Flash 3D (export only), JPS(JPEG Stereo), KMZ (Google Earth 4), MPO(Multi-Picture format), U3D, Wavefront|OBJ https://helpx.adobe.com/photoshop/using/supported-file-formats-photoshop-cs6.html		TIFF, EXR, PDF, WebP **Import only:** Krita Document, EXR, OpenRaster document, PSD image, Gimp image, PPM, PGM, PBM, PNG, JPEG-2000, PDF, ODG draw, BMP Windows, XPM, GIF, XBM, Krita Flipbook, Adobe DNG and Camera RAW, WEBP	
URL	http://www.adobe.com/in/products/photoshop.html	https://www.gimp.org/downloads/	https://krita.org/en/download/krita-desktop/	https://autodesk-pixlr.en.softonic.com/#app-softonic-review
Year	12/12/2016	11/05/2017	08/08/2017	-

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Software	Pros	Cons
Adobe Photoshop	✓ Huge number of tutorials is available which help user to understand the software easily. ✓ It allows high advanced image manipulation and featured image editing software. ✓ It can be used in variety of fields such as in photography, graphic design and digital art. ✓ It provides the wide variety of plug-in which allow user to add new effects, improve exiting functionality. ✓ Photoshop is integrated with creative cloud which allow user to save the projects to creative cloud and allow to access them from any device ✓ It support most of the file formats	✓ A subscription fee is required to access and use of Photoshop CC ✓ Being commercial software Photoshop is very expensive. ✓ Do not allows user to do batch editing of images ✓ Interface can be overwhelming to new users. ✓ Learning of Photoshop features will take some time ✓ Photoshop is designed to work extensively on one image at a time. ✓ Progress bar is not shown by some tools.
GIMP	✓ Allow user to do fast basic image manipulation etc. ✓ As compare to other commercial and F/OSS GIMP is very light weight software. ✓ As compare to other software such as Photoshop etc GIMP has less feature but user friendly for beginners. ✓ Free and open sources and allow cross platform and licensed under GPL. ✓ GIMP is the great feature tool for free image editing. ✓ GIMP software can be installed on various platforms such as Window, MacOS and Linux. ✓ It provides plug-in for smooth image editing, image manipulations and workflow tools. ✓ Provide content-aware tools with a plug-in.	✓ GIMP have less feature as compare to other commercial and F/OSS, ✓ It has poor performance. ✓ Lacks of adjustments layers. ✓ No information availabe regarding Supporting Languages on the website.
Krita	✓ Brushes have useful and descriptive names such as HP Pencil etc. ✓ Easy layout. ✓ Great support for displaying brushes. each brush has a preview on mouse over. ✓ It is completely free and open source software ✓ It is easy to find out the most used and useful tools and do not hide anything behind the menus and dropdowns. ✓ Kirta is customizable such as themed can be apply on editing window and sidebar can be customized extensively throw many dockers or panes. ✓ Krita releases with updates and bug fixes with latest features on regularly.	✓ Krita's have incomplete official documentations in some area such as for new features. ✓ New features are not tested thoroughly. ✓ Not comfortable when working with text.
Pixlr	✓ Have Chrome App. ✓ Have the facilities to work with google drive. ✓ Having advanced filters. ✓ Pixlr have maximum Photoshop filters. ✓ Zooming function using mouse wheel.	✓ Do not have Flash. ✓ Required drag and drop support. ✓ Need to require to fix some known bugs.

6.0 Comparative study of Raster Image Graphics Software:

Comparison of Vector Image Graphics Software

Standards	Proprietary/Commercial Software		Free/Open Source Software		
	Adobe Illustrator	**CoralDraw**	**Inkscape**	**Karbon**	**Creative Docs. NET**
Current Version	Adobe Illustrator CC	CorelDRAW Graphics Suite X8	Inkscape 0.92	Karbon 3.0.1	Creative Docs. NET 3.x
Developer	Adobe Systems	Corel Corporation	By Multiple Authors	Calligra Suite	Epsitec SA
Features	✓ Crop images more easily ✓ Create new documents faster ✓ Redesigned Color Theme panel ✓ Stability enhancements	✓ LiveSketch tool ✓ Prominent interactive sliders ✓ Enhanced vector previews, nodes, and handles ✓ New state-of-the-art LiveSketch™ tool ✓ Enhanced Pen and Touch capabilities ✓ Expansive font management and filtering ✓ Optimized for Windows 10 and latest hardware ✓ Custom node shapes ✓ Touch-friendly user interface ✓ Powerful stylus enhancements ✓ Import legacy workspaces ✓ Microsoft Surface Dial support ✓ Compatibility ✓ Multi-monitor, 5K and Real-Time Stylus support ✓ Corel Font Manager ✓ Font filtering and search ✓ Copy Curve Segments ✓ Healing Clone tool ✓ Workspace customization ✓ CorelDRAW & SDK Developer Communit	✓ Mesh gradients ✓ The new Object dialog allows to select, label, hide and lock any object in the drawing from a dialog that lists them all ✓ Selection sets make it possible to 'group' objects together regardless of document structure ✓ Guides can now be locked to avoid accidental movement ✓ There are new extensions (e.g. a seamless pattern extension) and a new filter (colorblindness simulation) included in the release, many old extensions have been updated or got new features ✓ Many SVG2 and CSS3 properties are now supported (e.g. paint-order, mix-blend-mode) ✓ Spray tool and measure tool received a set of nifty new features ✓ BSplines (and more) are available for the Pen tool ✓ Checkerboard background	✓ Customizable user interface with freely placable toolbars and dockers ✓ Layer docker for easy handling of complex documents including preview thumbnails, support for grouping shapes via drag and drop, controlling visibility of shapes or locking ✓ Advanced path editing tool with great on-canvas editing capabilities ✓ Various drawing tools for creating path shapes including a draw path tool, a pencil tool as well as a calligraphy drawing tool ✓ Gradient and pattern tools for easy on-canvas editing of gradient and pattern styles ✓ Includes many predefined shapes	✓ Polygons ✓ Bezier Curves ✓ Text Line ✓ Various Attributes ✓ Pipette ✓ Styles ✓ Alignment ✓ Boolean Operations ✓ Association ✓ Combining ✓ Convert to Curves ✓ Convert Characters https://www.creativedocs.net/features/ **Document Features** ✓ Multi-document, multi-page, multi-layer ✓ Infinite undo and redo levels ✓ Image import and export ✓ Publishing features ✓ PDF export ✓ Magnetic grid, rulers ✓ Smart constraints, magnetizing objects in a layer ✓ Temporary masking of objects ✓ Non-modal user interface

		✓ Easy website design http://www.coreldraw.com/en/product/graphic-design-software/#features	can be used to more easily see object transparencies https://inkscape.org/en/about/features/	✓ Artistic text shape with support for following path outlines (i.e. text on path) ✓ Complex path operations and effects like boolean set operations, path flattening, rounding and refining as well as whirl/pinch effects ✓ Extensible by writing plugins for new tools, shapes and dockers https://www.calligra.org/karbon/features/	
Hardware requirem ent	**Windows** ✓ Intel Pentium 4 or AMD Athlon 64 processor ✓ Microsoft Windows 7 with Service Pack 1, Windows 8.1, or Windows 10 ✓ 1 GB of RAM (3 GB recommended) for 32 bit; 2 GB of RAM (8 GB recommended) for 64 bit ✓ 2 GB of available hard-disk space for installation ✓ 1024 x 768 display (1280 x 800 recommended) ✓ To view Illustrator in HiDPI mode,required resolution of 1920 x 1080 or more.	✓ Microsoft Windows 10, Windows 8.1 or Windows 7, in 32-bit or 64-bit, all with latest Updates and Service Pack ✓ Intel Core i3/5/7 or AMD Athlon 64 ✓ 2 GB RAM ✓ 1 GB hard disk space ✓ Multi-touch screen, mouse or tablet ✓ 1280 x 720 screen resolution at 100% (96 dpi) ✓ Microsoft Internet Explorer 11 or higher ✓ Microsoft .Net Framework 4.6 ✓ DVD drive (required for box installation) https://support.corel.com/hc/en-us/articles/219326157-CorelDRAW-Graphics-Suite-X8-System-Requirements	Inkscape source tarballs for Linux (binary packages are offered by the distributor) as well as flatpak and snap packages and a ppa for Ubuntu, packages for Windows (32bit and 64bit, portable app, fully self-contained installer, binary without installation), and Mac OS X (DMG, also MacPorts, Homebrew provided by community members). We know that Inkscape is successfully used on FreeBSD and other Unix-like operating systems. Note that Windows 98/Me and 2000 are no longer supported.	500MB free hard drive space	**Minimum System Requirements.** ✓ PC running Windows 2000, XP, Server 2003 or Vista. ✓ 1 GHz processor. ✓ 1 GB memory recommended. ✓ 1024 x 768 pixels graphics card, or better. ✓ At least 32 768 colors. **Additional software required:** ✓ Microsoft .NET Framework 2.0 which will be downloaded automatically for you if you don't have it yet on your computer. https://www.creativedocs.net/requirements/

	✓ OpenGL 4.x ✓ To use the new Touch workspace in Illustrator, you must have a touch-screen-enabled tablet/monitor running Windows 8.1 or Windows 10 (Microsoft Surface Pro 3 recommended). ✓ Optional: To use GPU Performance: an Intel, NVIDIA, or AMD video adapter from those listed below (medium/high-end recommended); 1 GB of VRAM (2 GB recommended); and latest drivers for optimal performance https://helpx.adobe.com/illustrator/system-requirements.html			
License Type	Commercial	Commercial	Inkscape is Free and Open Source Software licensed under the GPL.	GNU Lesser General Public License	Information not found
Operative System/Platform	Windows and MacOS	Windows and MacOS	GNU/Linux, Window, Mac OS	✓ Linux; FreeBSD; MS Windows (preliminary support); Mac OS X (preliminary support)	Windows
Price	$239.99 (Student and Teacher Edition (1-Year Prepaid Subscription Card) - Mac - Digital Download) by www.bestbuy.com	Rs. 59,995.00 (Full Version) http://www.coreldraw.com/en/product/technical-suite/	Inkscape is Free and Open Source Software licensed	GNU Lesser General Public License (Free)	free
Service &	D Beginner's Guide, User Guide, Tutorials,	✓ Chat online ✓ Submit a ticket (Email us	https://inkscape.org/en/contact/us/	https://www.calligra.org/karbon/	Comments, ideas, bug reports and feed-back

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Support	Community Form, Enterprise support, Teams support, Education support, Download and install, Adobe learn, adobe support etc https://helpx.adobe.com/ support.html	and receive a response within 24 hours) ✓ Call 1-877-582-6735			about Creative Docs .NET. The submission address is bugs [at] creativedocs.net.
Support Languages	Dansk, Deutsch, English, Español, Français, Français, Hebrew, Hungarian, Italiano, Nederlands, Polish etc	Dansk, Deutsch, English, Español, Français, Français, Hebrew, Hungarian, Italiano, Nederlands, Polish etc	Français, Hebrew, Hungarian, Italiano, English, etc	Hebrew, Hungarian, Italiano, English, etc	Information not found
Supporting Formats	**For opening** Adobe Idea file (idea) (Illustrator CS6 only), Adobe PDF (pdf), AutoCAD Interchange File (dxf), AutoCAD Drawing (dwg), FreeHand (fh7, fh8, fh9, fh10, fh11, ft11), FXG (fxg), GIF89a (gif), JPEG (jpg, jpe, jpeg), JPEG2000 (jpf, jpx, jp2, j2k, j2c, jpc), Macintosh PICT (pic, pct), Enhanced Metafile (emf), (wmf),(eps, epsf, ps), Text (txt. docx), (doc), (rtf), (cdr), (cgm), TIFF (tif, tiff), (psd, pdd), BMP (bmp, rle, dib), PCX (pcx), Pixar (pxr), PNG (png), (tga, vda, icb, vst), SVG Compressed (svgz),	CDR (CorelDRAW), EPS (Encapsulated PostScript), PDF (Portable Document Format), PRN, TIFF (Tagged Image File Format), JPG (Joint Photographic Experts Group), GIF (CompuServe Bitmap)	✓ SVG format file generation and editing ✓ Live watching and editing the document tree in the XML editor ✓ PNG, OpenDocument Drawing, DXF, sk1, PDF, EPS and PostScript export formats ✓ Command line options for export and conversions	✓ Loading support for ODG, SVG, WPG, WMF, EPS/PS ✓ Writing support for ODG, SVG, PNG, PDF, WMF	Information not found

	SVG (svg), ai, ait), (eps, epsf, ps) **For saving:** (ai), eps), (ait), (pdf), FXG (fxg), SVG ;(svgz), SVG (svg) **For exporting :** PNG (png), BMP (bmp),(dwg),(dxf),(emf), Flash (swf), JPEG (jpg),(pct),(psd), TIFF (tif), Targa (tga), Text Format (txt), (wmf) **For web and devices** HTML (html), Image (gif), JPEG (jpg), PNG (png) https://helpx.adobe.com/illustrator/kb/supported-file-formats-illustrator.html				
URL	https://www.adobe.com/in	http://www.coreldraw.com/en/product/graphic-design-software/	https://inkscape.org/en/release/0.92.2/platforms/	https://www.calligra.org/karbon/	https://www.creativedocs.net/downloads/files/
Year	2017	2017	2017	2017	No Information

Software	Pros	Cons
Adobe Illustrator	✓ Adobe Illustrator allows to improve precision. ✓ Adobe Illustrator allow to infinite resolution with the vectors. ✓ Adobe Illustrator supports multiple page outputs. ✓ Can be integrates with other adobe products. ✓ Support all platforms.	✓ Adobe Illustrator is commercial software. ✓ Due to limited photo editing the finishing part is end with the use of Photoshop. ✓ Increasing cost of the software. ✓ It become little bit hard to curves something with converting anchor points. ✓ It requires patience for realistic photo-quality drawing with Adobe Illustrator.
CoralDraw	✓ Efficient and intuitive user interface. ✓ Feet as the unit for output size. ✓ It is a good for large scale prints. ✓ This software is easy to learn.	✓ Due to commercial in nature this software is expensive investment. ✓ Missing some photo effects, such as color correction, HDR imaging and panorama merging.
Inkscape	✓ Allows installation on cross platform such on Window, Mac, Linux. ✓ Free and Open source software under GPL- licensed and also maintains public repositories. ✓ Plug-in option offer extra benefits. ✓ Support common formats for imports such as SVG, PSD, AL etc. ✓ Support huge numbers of file types. ✓ Vector graphics can be edited and create easy and with fun.	✓ Cannot be used as professional application due to crashes without any reason. ✓ Depends upon system and hardware it starts very slow. ✓ Gradient mess or a comparable tool is missing. ✓ It may integrate with non-GTK environments because software is based on GTK. ✓ The latest version of this software use Millimeter instead of pixels.
Karbon	✓ Free vector graphics editors software. ✓ Good for create clipart, logos, illustrations or photorealistic vector images ✓ Highly customizable and extensible ✓ Integrated graphic art and office ✓ suite by KDE ✓ Vector drawing application with user friendly interface. ✓ Multiple platform support. ✓ Free under GNU Lesser General Public License	✓ No/Less information is regarding hardware requirement is given on website. ✓ Technical support is missing.
Creative Docs. NET	✓ Allow Multi-document, multi-page, multi-layer. ✓ Smart constraints, magnetizing objects in a layer ✓ Free software.	✓ No information found regarding License Type. ✓ No information found regarding supporting formats. ✓ No information found regarding supporting language. ✓ Support only window platform.

7.0 Comparative Study of Web Designing and Development Tool Kit:

Comparison of Web Designing and Development Tool Kit			
	Proprietary/Commercial Software	Free/Open Source Software	
Standards	**Animate CC (formally Adobe Flash)** (Re-branding of Flash Professional to incorporate)	**OpenLaszlo**	**Apache OpenOffice Impress**
Current Version	Animate CC	OpenLaszlo 4.9.0	Apache OpenOffice Impress 4.1.3
Developer	Adobe Systems	Laszlo Systems	✓ Sun Microsystems (1999–2009) ✓ Oracle Corporation (2010–2011) ✓ Apache Software Foundation (ASF) on June 1, 2011
Features	✓ 64bit Architecture ✓ HTML5 Canvas animations using the CreateJS JavaScript library ✓ SVG and Sprite Sheet support ✓ Added video export support including 4K HD	Information Not Found.	✓ Able to creating effective multimedia presentations. ✓ 2D and 3D clip art, special effects animation, and high-impact drawing tools. ✓ Easy-to-use drawing and diagramming tools to spice up your presentation. ✓ AutoLayout makes sure your presentations look professional. ✓ Produced presentations look great, less time micromanaging bullet placement, more productivity. ✓ Views are supported: Drawing / Outline / Slides / Notes / Handouts to meet all the needs of presenters and audiences. ✓ Slide show Animation and Effects bring your presentation to life.
Hardware requirement	Windows: ✓ Intel Pentium 4 or Intel Centrino, Intel Xeon, or Intel Core Duo (or compatible) processor ✓ Microsoft Windows 7 (64 bit), Windows 8.1 (64 bit), or Windows 10 (64 bit) ✓ 2GB of RAM (8GB recommended) ✓ 4GB of available hard-disk space for installation; additional free space required during installation (cannot install on removable flash storage devices) ✓ 1024x900 display (1280x1024 recommended) ✓ Internet connection and registration	✓ Windows XP/Internet Explorer 7 -- Flash 8, Flash 9, and DHTML ✓ Windows XP/Internet Firefox 3 -- Flash 8, Flash 9, and DHTML ✓ Linux 2.6 kernel Firefox 3 -- Flash 8, Flash 9, and DHTML ✓ Mac OS X Firefox 3 -- Flash 8, Flash 9, and DHTML ✓ Mac OS X Safari 3 -- Flash 8, Flash 9, and DHTML Server Requirements:	✓ Windows XP, Windows 2003, Windows Vista, Windows 7, Windows 8) ✓ 256 Mbytes RAM (512 MB RAM recommended) ✓ At least 650 Mbytes available disk space for a default install (including a JRE) via download. After installation and deletion of temporary installation files, Apache OpenOffice will use approximately 440 Mbytes disk space. ✓ 1024 x 768 or higher resolution with at least 256 colours **GNU/Linux ("Linux")** ✓ Linux kernel version 2.6 or higher, glibc2 version 2.5 or higher ✓ 256 Mbytes RAM (512 MB recommended) ✓ 400 Mbytes available disk space ✓ X-Server with 1024 x 768 or higher resolution with at least 256 colours **Mac OS X** ✓ Mac OS X 10.4 (Tiger) or higher

	are necessary for required software activation, validation of subscriptions, and access to online services. **Mac OS:** ✓ Multicore Intel processor ✓ MacOS X v10.10 (64 bit), v10.11 (64 bit), or v10.12 (64 bit) ✓ 2GB of RAM (8GB recommended) ✓ 4GB of available hard-disk space for installation; additional free space required during installation (cannot install on a volume that uses a case-sensitive file system or on removable flash storage devices) ✓ 1024x900 display (1280x1024 recommended) ✓ QuickTime 10.x software recommended ✓ Internet connection and registration are necessary for required software activation, validation of subscriptions, and access to online services. https://helpx.adobe.com/animate/system-requirements.html	✓ Java Runtime Environment (JRE) 1.5 or greater. Note that the OpenLaszlo Developer Kit requires the Java SDK, since Jakarta Tomcat, the servlet container that ships with it, needs the Java SDK. ✓ A Java Servlet container supporting at least version 2.2 of the Java Servlet Specification. This is only required for OpenLaszlo Core. OpenLaszlo Developer Kit ships with Tomcat 5.0.24.	✓ Intel Processor ✓ 512 Mbytes RAM ✓ 400 Mbytes available disk space ✓ 1024 x 768 or higher resolution with 16.7 Million colours https://www.openoffice.org/dev_docs/source/sys_reqs_aoo40.html
License Type	Commercial	Open Source Common Public License (CPL)	Free and Open Productivity Suite https://openoffice.apache.org/license.html
Operative System/Platform	Windows and Mac OS	Linux, Window, Mac OS	✓ Microsoft Windows ✓ GNU/Linux ("Linux") ✓ Mac OS X
Price	$239.88 (Adobe Animate CC | Prepaid 12 Month Subscription By Amazon.com)	Free	Free
Service & Support	Beginner's Guide, User Guide, Tutorials, Community Form, Enterprise support, Teams support, Education support, Download and install, Adobe learn, adobe support etc https://helpx.adobe.com/support.html	https://www.openlaszlo.org/contact	Apache OpenOffice Support area. Listed here are links to: ✓ Community support; Product documentation; Professional services; Books about OpenOffice.; Other Online resources https://www.openoffice.org/support/
Support	Deutsch, English, Español, Français,	English	English

Languages	Italiano, Nederlands, Polish, Português (Brasil), Svenska, Turkish, čeština, Русский etc		
Supporting Formats	FLA files, Uncompressed XFL , SWF files, AS files, SWC files, ASC files, JSFL files, APR files, Opening XFL files https://helpx.adobe.com/animate/using/documents.html	SWF8, SWF10, and DHTML	Impress can also export to MacroMedia Flash (.swf) and any of the graphics formats listed for Draw. https://wiki.openoffice.org/wiki/Documentation/OOo3_User_Guides/Getting_Started/File_formats
URL	https://www.adobe.com/creativecloud/plans.html	https://www.openlaszlo.org/download	https://openoffice.apache.org/downloads.html
Year	2017	2010	12 October 2016

Software	Pros	Cons
Adobe Flash (Animate CC)	✓ Adobe makes improvements in interface. ✓ Allow numbers of ways to create animation and special effects, motion tween, classis tweens. ✓ Allows exporting video and HTML5 is a dynamic feature. ✓ Boe tool allow user to link symbols together quickly and easily in parent/child relationship. ✓ Easy to use. ✓ Full screen editing mode is a good addition, which shows only the canvas. ✓ Layers help user to organized artwork in documents.	✓ Being commercial the cost of the software is very high. ✓ Difficult for LIS professionals to play with this software. ✓ Do not support Linux operting system. ✓ Required professional training to use it.
OpenLaszlo	✓ It is free and Open Source Common Public License (CPL). ✓ Multiple platform support. ✓ Support different formats such as SWF8, SWF10, and DHTML etc.	✓ Latest version is released in 2010. ✓ No information is found reagarding feature of this software is not. ✓ Support fewer formats as compare to Animate CC (formally Adobe Flash).
Apache OpenOffice Impress	✓ Free and open source. ✓ Offer huge number of languages. ✓ Support cross platform. ✓ 2D and 3D clip art, special effects animation, and high-impact drawing tools.	✓ Support less format as compare to Animate CC (formally Adobe Flash) ✓ Required regular up-gradation. ✓ Required more information about the software.

8.0 Comparative Study of Web Designing and Development Tool Kit:

Comparison of Web Designing and Development Tool Kit

Standards	Proprietary/Commercial Software		Free/Open Source Software	
	Adobe Dreamweaver	**FrontPage**	**Aptana Studio**	**KompoZer**
Current Version	Dreamweaver CC	FrontPage 1.0	Aptana Studio 3.6.1	KompoZer 0.8b3
Developer	Adobe Systems	Microsoft	Aptana Inc.	Fabien Cazenave lead developer
Features	✓ Git support ✓ New code themes ✓ Updated CEF support ✓ Improved onboarding ✓ Support for PHP 7 ✓ Improved Find and Replace ✓ New Code Editor ✓ CSS preprocessor support ✓ Quick CSS editing within HTML file ✓ Real-time browser preview http://www.adobe.com/in/products/dreamweaver/features.html	✓ FrontPage allow to Create Webpages offline. ✓ FrontPage to Create multiple webpage. ✓ FrontPage allow to Add audio and video. ✓ FrontPage 2003 have Split View option (coade and preview) ✓ Support for programming in ASP.NET a server-side scripting language ✓ Support for macros in VBA. ✓ FrontPage introduced Dynamic Web Templates (DWT) in 2003	✓ HTML, CSS, and JavaScript Code Assist ✓ Deployment Wizard ✓ Integrated Debugger ✓ Git Integration ✓ Git Integration ✓ IDE Customization	✓ Easy web authoring ✓ Reliable technology inside ✓ FTP site manager ✓ A new color picker ✓ CSS editor ✓ Customizable toolbars ✓ Cleaner markup ✓ Automated Spellchecker ✓ Table/Cell resizing rulers
Hardware requirement	**Windows:** ✓ Intel® Core 2 or AMD Athlon® 64 processor; 2 GHz or faster processor ✓ Microsoft Windows 7 with Service Pack 1, Windows 8.1, or Windows 10 ✓ 2 GB of RAM (4 GB recommended) ✓ 2 GB of available hard-disk space for installation; additional free space (approximately 2 GB) required during installation. Dreamweaver cannot be installed on removable flash storage devices.	✓ Min Processor Type Intel Pentium - 233 MHz ✓ Min RAM Size 128 MB ✓ Min Hard Drive Space 180 MB ✓ OS Required Microsoft Windows 2000 SP3 or later, Microsoft Windows XP or later ✓ OS Family Windows ✓ Additional Requirements CD-ROM, SVGA monitor	✓ Aptana Studio supports both 32-bit and 64-bit architecture ✓ Linux: x86 architecture, GTK windowing system ✓ Mac OS: OS X/Intel architecture, OS X 10.5 or later	Information Not Found

	✓ 1280x1024 display with 16-bit video card ✓ Internet connection https://helpx.adobe.com/dreamweaver/system-requirements.html	✓ Min Processor Speed 233 MHz ✓ Min Processor Type Intel Pentium https://www.cnet.com/products/microsoft-office-frontpage-2003/specs/		
License Type	Commercial	Proprietary	Open Source	MPL/GPL/LGPL tri-license
Operative System/Platform	Window and MacOS	Windows 95, Windows 98, Windows NT, Windows XP	Window, (64-Bit, 32-Bit) Linux (64-Bit, 32-Bit), Mac OS X (64-Bit, 32-Bit)	✓ Windows ✓ Mac OS ✓ Linux ✓ Android iOS
Price	$239.88 (Adobe Dreamweaver CC Prepaid 12 Month Subscription by Amazon.com)	$199.99(Microsoft FrontPage 2003 - Old Version by Amazon.com)	Free	Free
Service & Support	Beginner's Guide, User Guide, Tutorials, Community Form, Enterprise support, Teams support, Education support, Download and install, Adobe learn, adobe support etc https://helpx.adobe.com/support.html	https://support.microsoft.com/en-in/contactus/	https://en.uptodown.com/contact-us	Information Not Found
Support Languages	Dansk, Deutsch, English, Español, Français, Français, Hebrew, Hungarian, Italiano, Nederlands, Polish etc	English	English	English, Dutch, Danish, Czech, Chinese, French, German, Hungarian etc http://www.kompozer.net/download.php
Supporting Formats	✓ CSS (Cascading Style Sheet) ✓ GIF (Graphics Interchange Format) ✓ JPEG (Joint Photographic Experts Group) ✓ XML (Extensible Markup Language) ✓ XSL (Extensible Stylesheet Language)	✓ CSS (Cascading Style Sheet) ✓ GIF (Graphics Interchange Format) ✓ JPEG (Joint Photographic Experts Group) ✓ XML (Extensible Markup Language) XSL (Extensible Stylesheet Language)	✓ Code assistance for Debugging for PHP, Ruby on Rails, Python, and Jaxer (an open-source AJAX server produced by Aptana) ✓ Code assistance and syntax highlighting for HTML, CSS, and Javascript ✓ AJAX libraries, including: jQuery, script.aculo.us, dojo, Prototype, Ext, YUI, and Aflax.	Information Not Found

			✓ DOM inspector and includes FTP, SFTP, and FTPS clients as well as Cloud	
URL	http://www.adobe.com/in/products/dreamweaver.html	https://www.microsoft.com/en-in/download/details.aspx?id=8139	http://www.aptana.com/products/studio3/download.html	http://kompozer.net/download.php
Year	2017	01.07.2003	2014	28-02-2010

Software	Pros	Cons
Adobe Dreamweaver	✓ Adobe Dreamweaver have the facilities to highlight the coding which makes easier to identify where CSS, PHP, Javascript, or HTML codings. ✓ Adobe Dreamweaver helps by proving the suggestion code. ✓ Adobe Dreamweaver predefine templates. ✓ Adobe Dreamweaver support content management system support such as WordPress, Joomla and Drupal ✓ Allow code validation and accessibility checks ✓ Find and Replace option help user to search and change the desired code. ✓ Have the facilities of properties bar and insert images option. ✓ Have the split windows, which mean user can see the design view and coding view simultaneously.	✓ Adobe Dreamweaver is not browser based. ✓ Difficult to learn interface for non professionals. ✓ Due to commercial software it is very expensive. ✓ Some time display in design view is not similar on browsers. ✓ Split window interface some time confused
FrontPage	✓ Allow to Create multiple webpage. ✓ FP having feature to Add audio and video. ✓ FrontPage 2003 have Split View option (coade and preview) ✓ FrontPage have the facility to Create Webpages offline. ✓ FrontPage introduced Dynamic Web Templates (DWT) in 2003 ✓ Support for macros in VBA. ✓ Support for programming in ASP.NET a server-side scripting language	✓ Discontinued by Microsoft after 2003. ✓ FrontPage is fewer features as compare to Adobe Dreamweaver CC. ✓ It is commercial software. ✓ Support on window platform. ✓ Specially support Internet Explorer.
Aptana Studio	✓ Aptana Studio has standalone (130.7 MB for Windows) and Eclipse-plug-in versions. ✓ Free and open source software under GUP license with source code. ✓ It support variety of programming languages such as HTML, CSS, JavaScript, PHP, and Ruby etc. ✓ Support HTML 5 code. ✓ To make collaboration and version control easier it supports git integration. ✓ To run commands it has the facility of built-in terminals.	✓ This software is built with Java therefore, it requires JDK version. ✓ To install Eclipse plug-in it requires Git, and Eclipse 3.5.
KompoZer	✓ KompoZer is easy to use and learn. ✓ KompoZer is lightweight and fast programe. ✓ This software has free/buy readymade WebPages. ✓ This software is free under MPL/GPL/LGPL tri-license. ✓ With great feature HTML editor allow user to set a back of website. ✓ With number of feature it has user friendly interface.	✓ Hardware requirement information is missing from the websites. ✓ No information is found regarding Supporting Formats and Service & Support. ✓ No active development found after 2010. ✓ Do not support CSS validation

9.0 Conclusion and suggestions:

This paper is a comparative study of various tools and software which are required for website designing and development. Authors have done very exhaustive work and opened the way for those LIS Professionals which are eager to come with ICT but helplessness due to high cost of designing software and requirement of professional training. Comparative study of various graphic and web designing tools will obviously help the LIS Professionals and others to analyses, evaluate and select the software or website designing tools as per the needs and requirements of their organization. Various check points of Proprietary/Commercial and Free/Open Source Software (F/OSS) to

compare in details have been included such as price, platform, hardware requirement, download link, License Type, features and service/support etc.

Pros and cons of various software are the very important parts of this article which help the LIS Professionals to understand the features of all the software comprehensibly and with this, objectives of this article also been fulfilled. Through this paper authors suggest all those LIS professionals to come forward with ICT to improve the in-house working and fulfill the needs of the users of present era. LIS professionals wouldn't be hesitate to go with the Free/Open Source Software (F/OSS), if the maximum requirements of the organizations can be fulfilled at the minimum cost.

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