References

1. https://global.britannica.com/topic/library

2. https://en.oxforddictionaries.com/definition/library

3. http://dictionary.cambridge.org/dictionary/english/library

4. http://libguides.ala.org/library-definition.

5. http://ftp.cordis.europa.eu/pub/ist/docs/rn/castelli.pdf.

6 Apps - access my library - gale (no date) Available at: http://www.accessmylibrary.com/article-1G1-17012134/digital-libraries cover- story. Html In-line Citation: (Apps - access my library - gale, no date)

7 Balasubramanian, P., Muthu, A. and Kanthimathi, S. (2004), 'Modern trends in digital library', Digital Information Exchange: Pathways to Build Global Information Society, Madras, Chennai, 22-23 January, Indian Institute of Technology, Madras 250- 252

8 Krishnamurthy, M. (2003). Digital library using green stone: A study. SRELS Journal of Information Management, 40(4), 313-320.

9 Sonkar, Sharad Kumar et. al. (2005). Application of Greenstone digital library (GSDL) Software in Newspapers Clippings. DESIDOC Bulletin of Information Technology. 25(3), 9-17

14. Jeatt, T. and Taylor (2016) Taylor & Francis Group. Available at: http://www.haworthpress.com/store/articleAbstract.asp?sid=LL66W4EHQX0P8K0DPCJMCW Q6CERE2SUD&ID=80849 In-line Citation: (Jeatt and Taylor, 2016)

10 . Jain, P.K., Jindal, S.C. and Babbar, Praveen. (2007). Digital libraries in India: Initiatives and problems. Proceedings of International Conference on Digital Libraries 2006: Information management for global access December 5-8, 2006, New Delhi: The Energy and Resources Institute, 22-31

11. Satpathy, Kishor Chandra. (2007). Digital library project: A case study of NIT Silchar. Jaswal, D. S. et. al. ed. Proceedings of National Conference on Recent Trends in Library and Information Science (RTLIS-07) November 16-17, 2007, Chandigarh: Arun Publishing House.

12 .http://www.healthnet.org.np/ocs/index.php/icikm- 2008/icikm/paper/viewPDFInterstitial/19.

13. Wale, C.P. (2011) 'Cloudy with a chance of open source: Open source integrated library systems and cloud computing in academic law libraries', Legal Reference Services Quarterly, 30(4), pp. 310–331. doi: 10.1080/0270319x.2011.626324. In-line Citation: (Wale, 2011)

14 http://www.cs.waikato.ac.nz/~ihw/papers/01IHW-DB-SB-Greenstoneopen.pdf

15. Shuva, N.Z. (2012) 'Building digital libraries in Bangladesh: A developing country perspective', International Information & Library Review, 44(3), pp. 132–146. doi: 10.1080/10572317.2012.10762924. In-line Citation: (Shuva, 2012)

16. Shuva, N.Z. (2012) 'Building digital libraries in Bangladesh: A developing country perspective', International Information & Library Review, 44(3), pp. 132–146. doi: 10.1080/10572317.2012.10762924. In-line Citation: (Shuva, 2012)

17. Vinson, C.G. and Boyd, K.F. (2008) 'Cracking the egg: The south Carolina digital library's new perspective', Journal of Electronic Resources Librarianship, 20(2), pp. 117–128. doi: 10.1080/19411260802298144. In-line Citation: (Vinson and Boyd, 2008)

18. Blansit, B.D. (2009) 'Free/open source software licenses', Journal of Electronic Resources in Medical Libraries, 6(4), pp. 362–370. doi: 10.1080/15424060903364891. In-line Citation: (Blansit, 2009)

19. Digitalna knjižnica Slovenije (2015) Available at: http://www.dlib.si/?&language=eng . In-line Citation: (Digitalna knjižnica Slovenije, 2015)

20 .http://www.cms.waikato.ac.nz/~ihw/papers/04-IHW-MJ-DB-PC-SJC-Customizingdigital.pdf
21. http://www.cs.waikato.ac.nz/~tetaka/PDF/DLandMinority.pdf

22https://comminfo.rutgers.edu/~tefko/Courses/Zadar/Readings/Law%20Academic%20Digital%20Libraries%20of%20the%20Future%20New%20Rev%20of%20Acad%20Libr%202009.pdf

23. Skekel, D. (2008) 'Digital collections: Transforming the work of libraries', Journal of Library Metadata, 8(2), pp. 147–153. doi: http//dx..org/10.1080/10911360802087341. In-line Citation: (Skekel, 2008)

24.https://comminfo.rutgers.edu/~tefko/Courses/e553/Articles/Articles%20Sp15/Kelly%20Asses%20dl%20materials%20J%20Web%20libr%202014.pdf

25. http://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1029&context=lib_ts_pubs 31. Bibliography: Stranack, K. (2008) 'The reSearcher software suite: A case study of library collaboration and open source software development', The Serials Librarian, 55(1-2), pp. 117–139. doi: 10.1080/03615260801970824. In-line Citation: (Stranack, 2008)

26. Farmer, L.S.J. (2009) 'The life cycle of digital reference sources', The Reference Librarian, 50(2), pp. 117–136. doi: 10.1080/02763870902755957. In-line Citation: (Farmer, 2009)

27. Paknejad, A. (2013) 'Technical assessment of Greenstone toward development of digital libraries in Iran', The Electronic Library, 31(5), pp. 593–607. doi: 10.1108/el-01-2011-0010. In-line Citation: (Paknejad, 2013)

28. Tebbells, D.R. (1999) 'Building the digital library infrastructure', Journal of Library Administration, 26(3-4), pp. 5–23. doi: 10.1300/j111v26n03_02. In-line Citation: (Tebbells, 1999)

Appendix 1 - topuser.tt

```
[% USE Koha %]
[% USE Branches %]
[% USE AuthorisedValues %]
[% USE ItemTypes %]
[% INCLUDE 'doc-head-open.inc' %]
<title>[% IF ( LibraryNameTitle ) %][% LibraryNameTitle %][% ELSE %]Koha online[% END %]
catalog &rsaquo; Best Borrower in Lending and Reference sections</title>
[% INCLUDE 'doc-head-close.inc' %]
[% BLOCK cssinclude %]
        <style type="text/css">
        #search-facets fieldset { border: 0; margin: 0;padding:.3em;}#search-facets
ol{padding:.3em;}#search-facets li {list-style-type:none;padding:4px 4px;}#search-facets
label{font-weight:bold;display:block;margin:.2em 0;}#search-facets fieldset.action
{padding-left:4px;margin:.3em;};
        </style>
[% END %]
</head>
[% INCLUDE 'bodytag.inc' bodyid='opac-topuser' bodyclass='scrollto' %]
[% INCLUDE 'masthead.inc' %]
        <div class="main">
        <ul class="breadcrumb">
        <li><a href="/cgi-bin/koha/opac-main.pl">Home</a> <span
class="divider">&rsaquo;</span></li>
        <li><a href="#">Best Borrower in Lending and Reference sections</a></li>
        </ul>
        <div class="container-fluid">
        <div class="row-fluid">
                <div class="span2">
                <div id="usertopuser">
                [% INCLUDE 'opac-topuser.inc' %]
                [% IF ( OpacNav || OpacNavBottom ) %]
                        [% INCLUDE 'navigation.inc' %]
                [% END %]
                </div>
                </div>
                <div class="span10">
                <div id="topuser" class="maincontent">
                [% IF ( results ) %]
                        <table id="topuser" class="table table-bordered table-striped">
                        <caption>
                        The 5 most checked-out
```

```
[% IF selected_itemtype %]
        [% ItemTypes.GetDescription(selected_itemtype) %]
[% END %]
[% IF ( branch ) %]
at
[% Branches.GetName( branch ) %]
[% END %]
[% IF ( timeLimit != 999 ) %]
in the past [% timeLimit |html %] months
[% ELSE %] of all time[% END %]
</caption>
<thead>
<tr>
        <th>Borrower(Surname)</th>
        <th>Number of Items</th>
</tr>
</thead>
<tbody>
[% FOREACH result IN results %]
        <tr>
        <td><span>
        [% IF ( result.surname ) %][% result.surname %][% END %]
        </span>
        </td>
        <td>                                                    [% IF ( result.Counts ) %][%
result.Counts %][% END %]</td>
                <tr>
        [% END %]
        </tbody>
        </table>
    [% ELSE %]
        No results, try to change filters.
    [% END # / IF results %]
    </div> <!-- / #topissues -->
    </div> <!-- / .span10 -->
</div> <!-- / .row-fluid -->
</div> <!-- / .container-fluid -->
</div> <!-- / .main -->
[% INCLUDE 'opac-bottom.inc' %]
[% BLOCK jsinclude %]
[% INCLUDE 'datatables.inc' %]
<script type="text/javascript">
//<![CDATA[
```

```
$(function() {
$("#topissuest").dataTable($.extend(true, {}, dataTablesDefaults, {
"aaSorting": [ [2, "desc"], [0, "asc"] ],
"aoColumnDefs": [
[% IF ( opacuserlogin ) %]{ "aTargets": [ -1 ], "bSortable": false, "bSearchable": false }[%
END %]
],
"aoColumns": [
        { "sType": "anti-the" },
        null,
        { "sType": "title-numeric" },
        [% IF ( opacuserlogin ) %]null,[% END %]
]
}));
});
function Dopop(link) {
newin=window.open(link,'width=500,height=400,toolbar=false,scrollbars=yes');
}
//]]>
</script>
[% END %]
```

Appendix II Circulation.pm

```perl
sub GetTopUser {
 my ($params) = @_;
        my ($branch, $newness)
        = @$params{qw(branch newness)};
        my $dbh = C4::Context->dbh;
        my $query = q{
        select bo.surname,count(i.issue_id) as Counts from borrowers bo left join issues i on
(i.borrowernumber=bo.borrowernumber)
        };
        my (@where_strs, @where_args);
        if ($branch) {
        push @where_strs, 'i.branchcode = ?';
        push @where_args, $branch;
        }
        if ($newness) {
        push @where_strs, 'TO_DAYS(NOW()) - TO_DAYS(i.issuedate) <= ?';
        push @where_args, $newness;
        }
 if (@where_strs) {
        $query .= 'WHERE returndate is not null and ' . join(' AND ', @where_strs);
        }
        $query .= q{
        GROUP BY bo.borrowernumber,bo.firstname
        ORDER BY Counts DESC
        };
 $query .= "LIMIT 5";
        my $rows = $dbh->selectall_arrayref($query, { Slice => {} }, @where_args);
        return @$rows;
}
```

Appendix III opac-topuser.pl

```perl
use strict;
use warnings;
use CGI qw ( -utf8 );
use C4::Auth;
use C4::Context;
use C4::Languages;
use C4::Search;
use C4::Output;
use C4::Koha;
use C4::Circulation;
use Date::Manip;
=head1 NAME
plugin that shows a stats on borrowers
=head1 DESCRIPTION
=cut
my $input = new CGI;
# if OpacTopuser is disabled, leave immediately
if ( ! C4::Context->preference('OpacTopissue') ) {
        print $input->redirect("/cgi-bin/koha/errors/404.pl");
        exit;
}
my $itemtypes = GetItemTypes();
my ($template, $borrowernumber, $cookie) = get_template_and_user(
        {
        template_name   => 'opac-topuser.tt',
        query           => $input,
        type            => "opac",
        authnotrequired => ( C4::Context->preference("OpacPublic") ? 1 : 0 ),
        debug           => 1,
        }
);
my $dbh = C4::Context->dbh;
# Displaying results
my $do_it = $input->param('do_it') || 0; # as form been posted
my $limit = $input->param('limit');
$limit = 10 unless ($limit && $limit =~ /^\d+$/); # control user input for SQL query
$limit = 100 if $limit > 100;
my $branch = $input->param('branch') || '';
if (!$do_it && C4::Context->userenv && C4::Context->userenv->{'branch'} ) {
        $branch = C4::Context->userenv->{'branch'}; # select user branch by default
}
```

```perl
my $itemtype = $input->param('itemtype') || '';
my $timeLimit = $input->param('timeLimit') || 3;
my $advanced_search_types = C4::Context->preference('AdvancedSearchTypes');
my @advanced_search_types = split /\|/, $advanced_search_types;
my $params = {
        count => $limit,
        branch => $branch,
        newness => $timeLimit < 999 ? $timeLimit * 30 : undef,
};
@advanced_search_types = grep /^(ccode|itemtypes)$/, @advanced_search_types;
foreach my $type (@advanced_search_types) {
        if ($type eq 'itemtypes') {
        $type = 'itemtype';
        }
        $params->{$type} = $input->param($type);
        $template->param('selected_' . $type => scalar $input->param($type));
}
my @results = GetTopUser($params);
$template->param(
        limit => $limit,
        branch => $branch,
        timeLimit => $timeLimit,
        results => \@results,
);
output_html_with_http_headers $input, $cookie, $template->output;
```

Appendix iv Apriori Algorithm

```perl
sub GetBiblioSuggestions{
    my ($biblionumber) = @_;
        my $dbh        = C4::Context->dbh;#Database handle object
                          # next line is Statement handle object
        my $sth        = $dbh->prepare("SELECT
iss.issue_id,iss.borrowernumber,DATE(iss.issuedate) FROM `issues` iss inner join `items` it on
iss.itemnumber=it.itemnumber where it.biblionumber=? ");
        # in issuees table we dont have biblionumber so inner join now we have
        my $count      = 0;
        my @results;
        $sth->execute($biblionumber);

    my @booksuggests;
    my $issue_id=0;
    my $borrowernumber=0;
    my $issuedate;
    my $booktitle="";
    my $booknumber=0;


    my @book_q;
        my @book_qTitle;

    while ( ($issue_id,$borrowernumber,$issuedate) = $sth->fetchrow_array( ) )
    {


        my $sth2        = $dbh->prepare("SELECT bb.biblionumber, bb.title FROM `issues` iss
inner join `items` it on iss.itemnumber=it.itemnumber inner join `biblio` bb on
it.biblionumber=bb.biblionumber where issue_id!=? and iss.borrowernumber=? and
DATE(iss.issuedate) =? ");



        $sth2->bind_param(1,$issue_id);
        $sth2->bind_param(2,$borrowernumber);
        $sth2->bind_param(3,$issuedate);
        $sth2->execute();
```

```perl
    while(($booknumber,$booktitle) = $sth2->fetchrow_array()){


            push @book_q, $booknumber;
            push @book_qTitle, $booktitle;


    }
            my @uniqu;
            my @dup;
            my %seen;
            @dup = map { 1==$seen{$_}++ ? $_ : () } @book_q;

            my @uniquT;
            my @dupT;
            my %seenT;
            @dupT = map { 1==$seenT{$_}++ ? $_ : () } @book_qTitle;
    }           foreach my $i (0 .. $#dup) {


                push(@booksuggests,{number=>$dup[$i],title=>$dupT[$i]});
            }

    return @booksuggests;
}
```