<u>Bookworm (e-Book library)</u>

Prepared by Parthasarathi Patra

Heritage Institute of Technology, Kolkata

College – Heritage Institute of Technology, Kolkata

Registration Number – 161260110105

Roll Number – 12616001104

Stream - Computer Science and Engineering

Semester – 7th

Date Created - 28-06-2019

Date Submitted – 02-07-2019

Acknowledgement

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to Mr. Kaushik Mukherjee for his guidance and constant supervision as well as for providing necessary information regarding the project & also for the support in completing the project.

I would like to express my gratitude towards my parents & member of Ardent Computech Pvt. Ltd. for their kind co-operation and encouragement which help me in completion of this project.

My thanks and appreciations also go to my colleague in developing the project and people who have willingly helped me out with their abilities.

_____

Signature

<u>Declaration</u>

All the statements and facts mentioned in the project report are true to the best of our knowledge and we have made claims of acquired competencies in good faith. This project report is written in our own words and is a true representation of our personal competence in the field of Computer Science and Engineering.

_____

Signature

<u>Certificate Page</u>

This is to certify that the project entitled "**Bookworm**" has been successfully completed by Parthasarathi Patra of Heritage Institute of Technology, Kolkata of Computer Science and Engineering, 7th semester for the partial fulfilment of his B.Tech degree.

He has done the project from Ardent Computech Pvt. Ltd. under the guided supervision of Mr. Kaushik Mukherjee.

The above mentioned project has been developed in IBM Platform As A Service Cloud by using PHP language and IBM DB2 on cloud database.

We wish him all the best in his future endeavour.

_____

Signature

<u>Index Page</u>

<u>Project Synopsis</u>

Bookworm is an online book-reading library, where user can read, download books and publishers can submit their own work. The main goal of bookworm is to make all the published works of humankind available toeveryone in the world.

This website is written in simple PHP language using the IBM cloud and IBM DB2 database is used for storage purpose.

Main features of this e-Book library are as follows:

•   Users can download or purchase a copy of a book for their personal usage.

•   Publishers can submit their works in this website and can earn money for their work.

•   Users can also request for books, which are not available in the website.

So, Bookworm is basically a platform for readers and publishers, where they can collaborate for their own benefit.

Cloud Computing

What is a Cloud?
Cloud is a group of server computer that provides services virtually over a network in a secured manner by following a particular cloud service delivery model.
Example: Amazon, Google, IBM, Microsoft cloud etc.

What is Cloud Computing?

Cloud computing is the on-demand delivery of compute power, database, storage, applications, and other IT resources via the internet with pay-as-you-go pricing.

IBM Platform as a Service

In a PaaS environment, a cloud service customer can develop, deploy, manage and run applications (created by the customer or acquired from a third party) using one or more execution environments supported by the cloud service provider. PaaS offerings are targeted primarily at application developers, though their capabilities can extend to operators.

One way of describing PaaS is that it represents a cloud service rendering of the application infrastructure (middleware): application servers, database management systems, business analytics services, mobile back-end services, integration brokers, business process management systems, rules engines and complex event processing systems. Such application infrastructure assists the developer in writing applications. This reduces the amount of code that must be written while expanding the application's functional capabilities.

The essence of a PaaS system is that the cloud service provider takes responsibility for the installation, configuration and operation of the application infrastructure, leaving responsibility for only the application code itself to the cloud service customer.

PaaS offerings also often expand on the platform capabilities of middleware by offering application developers a diverse and growing set of services and APIs that provide specific functionality in a managed, continuously available fashion, enabling immediate productivity for developers.

PaaS also enables applications to take advantage of the native characteristics of cloud systems, often without the application developer having to add special code to the application itself. This provides a route to building "born-on-the-cloud" applications without requiring specialized skills.

About PHP

What Is PHP?

PHP stands for Hypertext Preprocessor. It's an open source, server-side, scripting language used for the development of web applications. By scripting language, we mean a program that is script-based (lines of code) written for the automation of tasks.

What does open source mean? Think of a car manufacturer making the secret to its design models and technology innovations available to anyone interested. These design and technology details can be redistributed, modified, and adopted without the fear of any legal repercussions. The world today might have developed an amazing supercar!

Web pages can be designed using HTML. With HTML, code execution is done on the user's browser (client-side). On the other hand, with PHP server-side scripting language, it's executed on the server before it gets to the web browser of the user.

PHP can be embedded in HTML, and it is well suited for web development and the creation of dynamic web pages for web applications, e-commerce applications, and database applications. It is considered a friendly language with abilities to easily connect with MySQL, Oracle, and other databases.

Software Requirement Specification

CLOUD

IBM Cloud is used in the project. It is a robust suite of advanced data and AI tools.

SERVICE MODEL

The project is developed on IBM PAAS (Platform as a Service).

TYPE OF APPLICATION

Public cloud, the multi-tenant Cloud Foundry environment publicly available in the IBM Cloud.

CLOUD FOUNDRY SERVICE

PHP buildpack is used in the development of the project.

LANGUAGE

HTML and CSS are used for web designing and the server scripting is done with PHP.

DATABASE

BLUEDB – IBM Db2 on cloud is used to store the data in the database.

DATABASE CONSOLE

Database Instance – Db2-97

Location – London

No of Instances - 1

Memory per Instance - 256 MB

Toolchain - Eclipse Orion Web IDE

IBM CLOUD and WEBSITE

URL of the website - https://bkwrm.eu-gb.mybluemix.net

IBM Cloud Username – parthasarathipatra10@egmail.com

Password – Ardent123456

<u>Roles and Responsibilities of User</u>

Roles and responsibilities of users are as follows:

- Users have to provide valid and working email Id in order to open their account.
- In order to purchase or download content, users need to have a valid account on the website.
- User can purchase or download multiple books from their account.
- For submitting questions, queries and feedbacks no account is required.
- Users can create libraries with their favourite contents in the website.
- If registered user wishes to delete his/her account permanently, his/her downloaded and purchased books will be deleted completely for the website.

Characteristics

Main characteristics of Bookworm:

- Users can read a partial copy of the book.
- Registered users can download a copy of the book for their personal usage.
- Register user can also purchase a book from the publisher through this website.
- Users can request for a particular book.
- Publishers can submit their work.
- Publishers can earn money if a user buys his/her work.
- Registered users can create his/her own library and favourite section.
- User can submit their questions and queries in the help section.
- User can also give feedback on their experience.

<u>Security Measures</u>

- Only registered user with a suitable login Id and password can be able to download a full version of electronic copy of a book.

- Unregistered users will not be able to download any e-copy of book, provided they can only be able to view the first five pages of any book online.

- Only pdf format of e-books are allowed to be downloaded.

- In order to improve security of the system, the publishers can be able to upload a limited size of a book in pdf format. No executive file format is allowed to be uploaded.

  - SSL has been implemented in order to incorporate encryption of data.

<u>Limitations</u>

Every project work has it's own limitations. This project is no different from that. It has got it's own constraints.

The limitations of this project are as follows:

- As the project is in experimental stage, no service of payment gateway is included in this project. So, the purchase part in this project is incomplete.
- In the same way, no email service is included in this web project. Hence, there is no way of checking or verifying any valid email ID.
- No publisher has contributed any kind of books or works in this web-project, some downloaded pdf files have been uploaded in the file system for experimental purposes.

Entity Relationship Diagram

ER - diagram is a pictorial representation of relationship among various entities (tables) of a database.

In a RDBMS software, the tables should relate with one another, hence ER - diagram is a measure to check if they relate properly or not.

Symbols used in ER – diagram
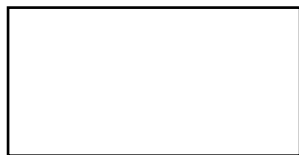
Entity
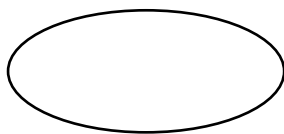
Attribute
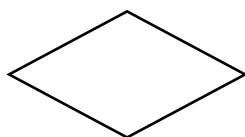
Relationship

Flow lines / Joining lines

Tables in Database

PAYMENT

PAYID (PRIMARY KEY)
PAYDATE
EMAIL (FOREIGN KEY)
FIRSTNAME
LASTNAME
AMOUNT
PAYMODE

USER

EMAILID (PRIMARY KEY)
PASSWORD

FEEDBACK

SERIAL (PRIMARY KEY)
FIRSTNAME
LASTNAME
FEEDBACK
EMAIL (FOREIGN KEY)

ER Diagram of Bookworm
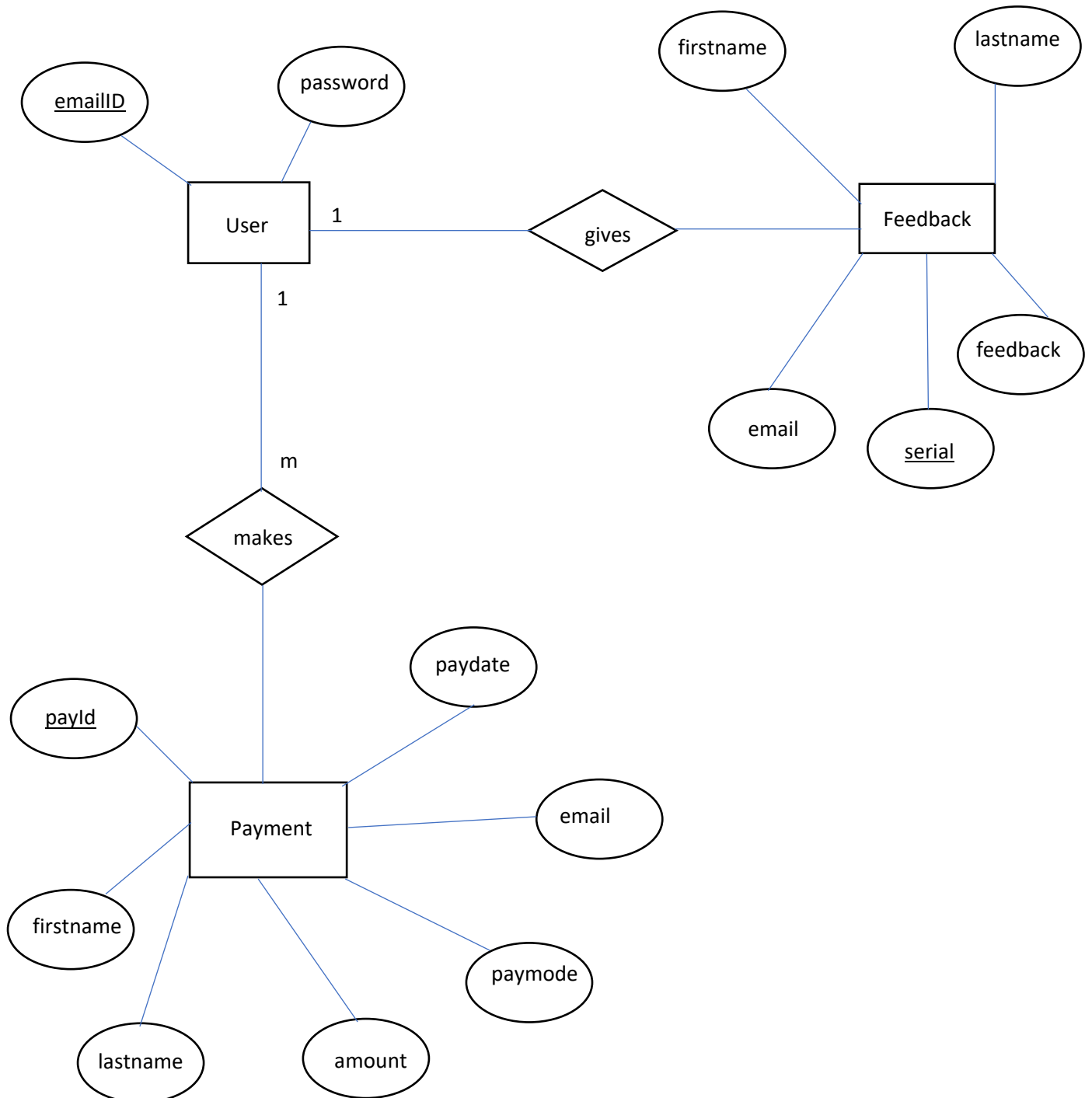
<u>DATA FLOW DIAGRAM</u>

Data flow diagram is a pictorial representation of flow of data among various process in a system. It may also represent the flow of data between user of a system and process, between process to process and also from process to data store in a system.

The initial data flow diagram starts with the 0th level, which is called the context level. We can break up each and every module to display a detailed Data flow, where we have to create 1st level, 2nd level, and so as data flow diagrams respectively.

The more the number of levels in a DFD, the more is the detailed breakups of each and every process in a DFD.

Symbols Used in DFD
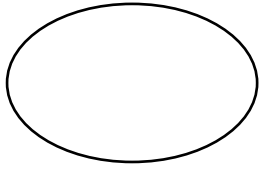
Process
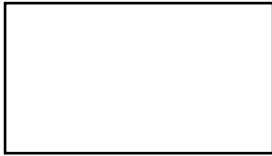
User

Data Store
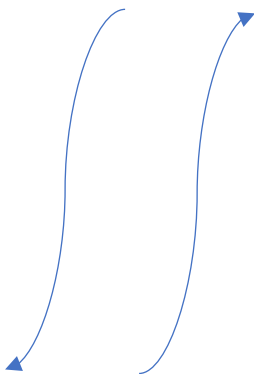
Data Flow Lines

Context Level DFD of Bookworm (e-Book Library)

Get book details, download book details, get payment details, get request details

Insert book info, update book info, delete book details, upload book details

User

Publisher

Bookworm (e-Book Library)

Search for books, browse books, browse book details, make payment, make book request

Get reader details, get request details, get payment details, get book details

Take backup and restore, maintain web application

Get details of user, publisher, payment and other reports

Admin

1st Level DFD of Bookworm (e-Book Library)

Data Dictionary

User table in IBM Db2 database on cloud

Feedback table in IBM Db2 database on cloud

Payment table in IBM Db2 database on cloud

<u>Screenshots</u>

Screenshot of Index page

Screenshot of Sign Up page
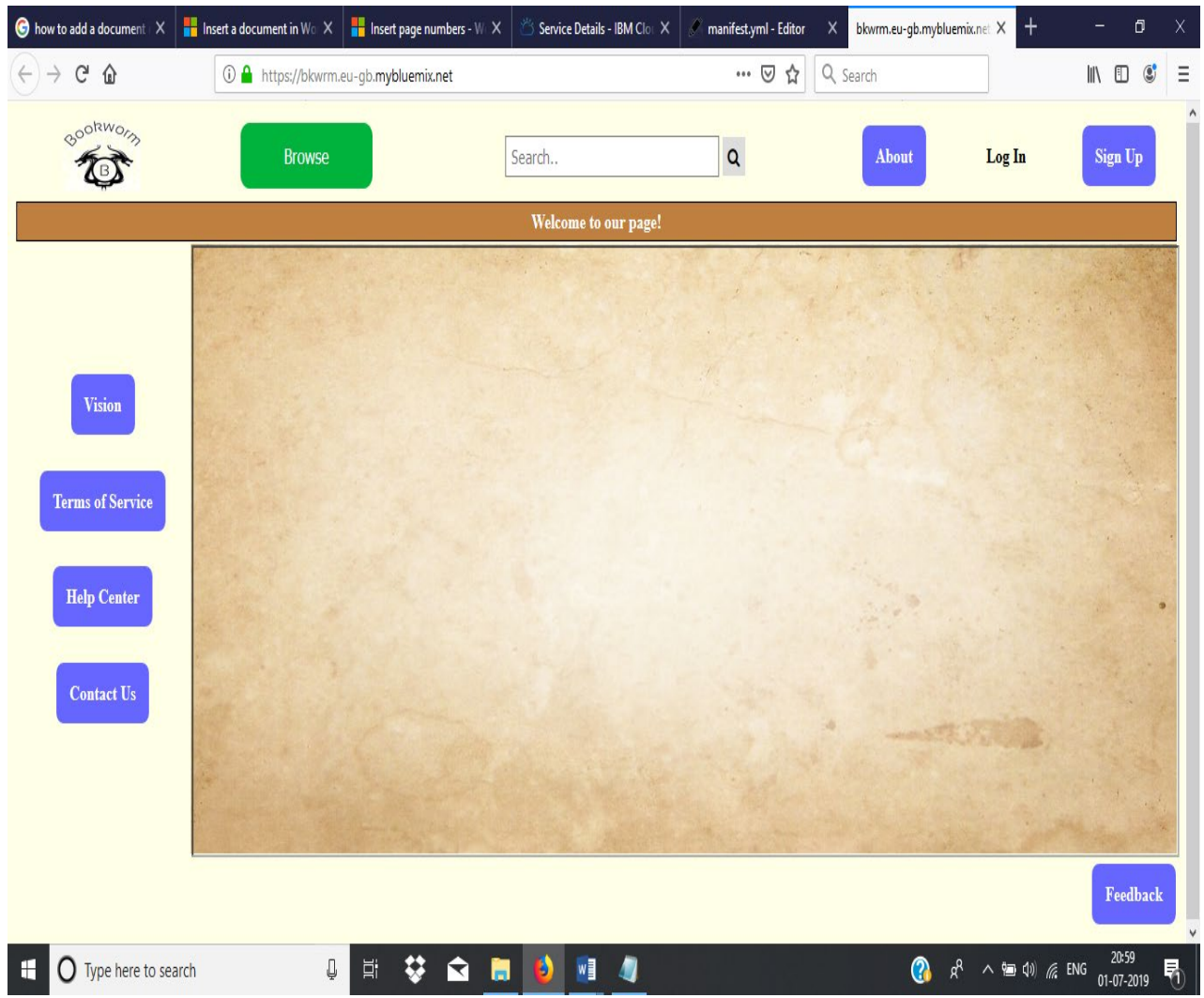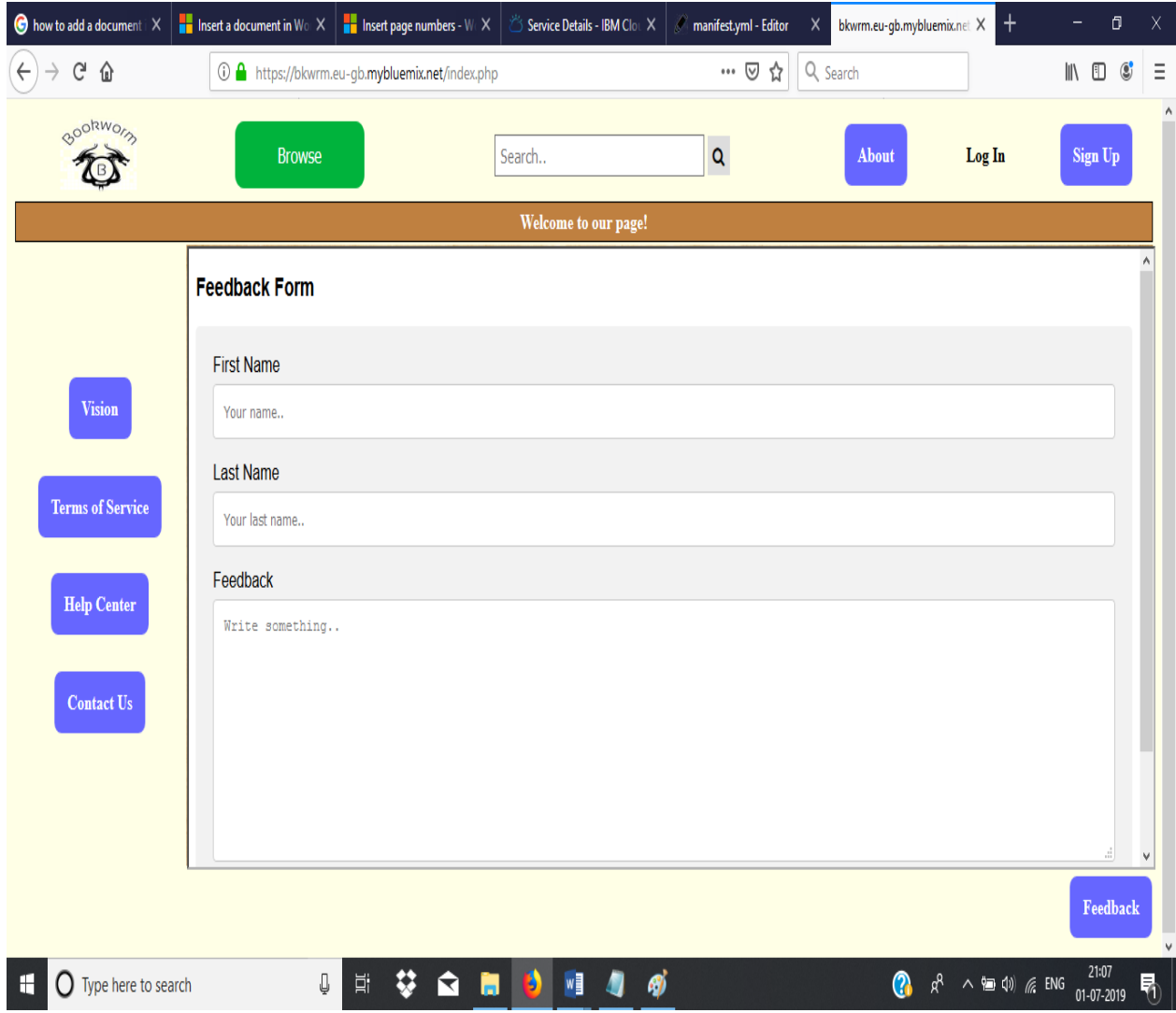
Screenshot of Login page

Screenshot of Feedback page

Screenshot of Science Book category page
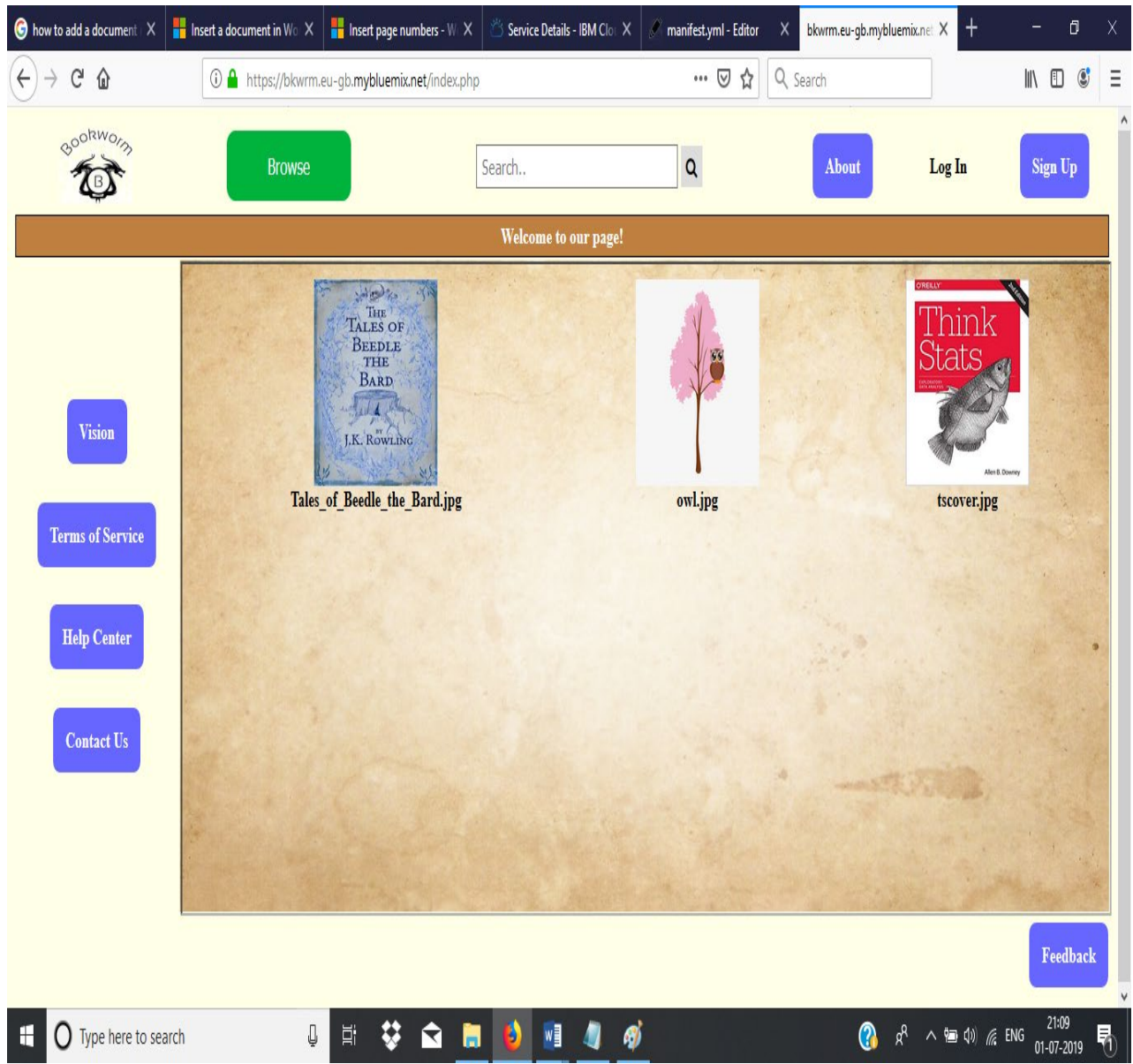
<u>Program Codes</u>

Code for index.php page

```
<!DOCTYPE html>
<html>
 <head>
   <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css">
   <title></title>
   <style>
   body {
     background-color: #ffffe6;
   }
   .back {
     background-color: white;
     background-image: url(images/map.jpg);
     background-size: 100% 100%;
   }
   .x {
     text-decoration: none;
     color: white;
     background-color: #6666ff;
     padding: 15px;
     border-radius: 8px;
   }
   .x:hover {
     background-color: lightgreen;
   }
   .i {
     padding: 6px;
     width: 50%;
     font-size: 15px;
   }
   .b {
```

```css
  padding: 6px 6px;

  background: #ddd;

  font-size: 15px;

  border: none;

  cursor: pointer;

}
.b:hover {

  background: #ccc;

}
.dropbtn {

  background-color: #00b33c;

  color: white;

  padding: 16px 50px;

  font-size: 16px;

  border: none;

  border-radius: 10px;

  cursor: pointer;

}


.dropdown {

  position: relative;

  display: inline-block;

}


.dropdown-content {

  display: none;

  position: absolute;

  background-color: white;

  min-width: 160px;

  box-shadow: 0px 8px 16px 0px rgba(0,0,0,0.2);

  z-index: 1;

}


.dropdown-content a {
```

```
      color: black;

      padding: 12px 16px;

      text-decoration: none;

      display: block;

    }


    .dropdown-content a:hover {background-color: #f1f1f1}


    .dropdown:hover .dropdown-content {

      display: block;

    }


    .dropdown:hover .dropbtn {

      background-color: #3e8e41;

    }
  </style>
 </head>
 <body>
  <table width = "100%" height = "640" align = "center" border = "0">
    <tr>
      <th width = "15%" height = "10%" style="background-color: #ffffe6;"><a href="index.php"><img
src="images/logo.png" width = "120" height = "60"></a></th>
      <th width = "20%" height = "10%">
        <div class="dropdown">
          <button class="dropbtn">Browse</button>
          <div class="dropdown-content">
            <a href="science.php" target="if1">Science</a>
            <a href="magic.php" target="if1">Magic</a>
            <a href="detective.php" target="if1">Detective</a>
            <a href="sci-fi.php" target="if1">Sci-fi</a>
          </div>
        </div>
      </th>
      <th width = "35%" height = "10%">
        <div>
```

32

```
        <form action="#">
          <input class="i" type="text" placeholder="Search.." name="search">
          <button class="b" type="submit"><i class="fa fa-search"></i></button>
        </form>
      </div>
    </th>
    <th width = "20%" height = "10%" align = "">
      <div>
        <a href="index.php" class="x" style="margin-right: 65px;">About</a>
        <a href="login.php" align = "center" style="text-decoration: none; color: black;">Log In</a>
      </div>
    </th>
    <th width = "10%" height = "10%"><a class="x" href="sign.php" target="if1">Sign Up</a></th>
  </tr>
  <tr>
    <th height = "5%" colspan="5" style="background-color: #bf8040; color: white; border: 1px solid black;"
align ="center">Welcome to our page!</th>
  </tr>
  <tr>
    <th width = "15%" height = "75%" colspan="1">
      <table border="0" height= "300" align="center">
        <tr>
          <th><a class="x" href="vision.php" target = "if1">Vision</a></th>
        </tr>
        <tr>
          <th><a class="x" href="index.php">Terms of Service</a></th>
        </tr>
        <tr>
          <th><a class="x" href="help.php" target="if1">Help Center</a></th>
        </tr>
        <tr>
          <th><a class="x" href="contact.php" target = "if1">Contact Us</a></th>
        </tr>
      </table>
    </th>
```

```
<th class="back" width = "85%" height = "75%" colspan="4">

<iframe src="" width="100%" height="100%" name="if1" style=""></iframe>

</th>

</tr>

<tr>

<th colspan="5" align = "right" style=""><a class="x" href="feedback.php" target =
"if1">Feedback</a></th>

</tr>

</table>

</body>

</html>
```

Code for signserver.php page

```php
<!DOCTYPE html>

<html>

 <head>

  <title></title>

 </head>

 <body>

  <br>

  <?php

   $email = $_POST['email'];

   $pass = $_POST['psw'];

   $con_str = "DRIVER={IBM DB2 ODBC DRIVER};DATABASE=BLUDB;HOSTNAME=dashdb-txn-
sbox-yp-lon02-01.services.eu-gb.bluemix.net;PORT=50000;PROTOCOL=TCPIP;UID=qfp60913;PWD=n-
pmrtrxltt78gcz;";

   $con = db2_connect($con_str);

   $sql = "insert into qfp60913.user values ('$email', '$pass')";

   $stmt = db2_prepare($con, $sql);

   $res = db2_execute($sql);

   if($res == TRUE)

   {

    echo "<br>"."Congratulations you have succesfully registered.";

    echo "<br><br>"."Kindly login with this Email-Id and password.";
```

```php
    echo "<br>"."Thank you.";

    }

    else {

    echo "<br>"."Unable to register, try again later.";

    }

    ?>

 </body>

</html>
```

35

Future Scopes

Future scopes of this project are as follows:

- Payment gateway service can be added to the project to include purchase option.
- Email service can be added to verify and maintain the user accounts properly.
- With the inclusion of security service system, the security in the website can be improved as well.
- The update profile method, add to library and favourite sections can be added in the future.

In this way, readers, users, publishers can come closer in this e-Book reading website to make it a grand success.

<u>Conclusion</u>

With the advent of e-Book library in the internet world, the readers can read various kind of books from anywhere at any time. Another major advantage is that all the books are stored in one place, which eases the burden of searching.

In the same way, the Bookworm website provides thousands of materials to the readers and also gives a platform to the publishers to sell and showcase their hard works.

So, in near future, it is possible that the individual readers and publishers will come forward to join this project and to make to it a grand success.

<u>Bibliography</u>

The content for this project report has been taken from the following sources

- https://www.w3schools.com
- https://en.wikipedia.org/wiki/Cloud_computing
- https://www.ibm.com/cloud/learn/cloud-computing