Examination Portal

(Project Report)
From *Biswajit Das, 2020PGCACA22*

Dummy site : https://examportal-nit-project.herokuapp.com/

Dummy logins : 1) User Name : 2020PGCACA22 , Password : qwerty123
2) User Name : DEEPDAS782446, Password :zxcvbn123

Note : Use only for project purposes

Complete Code : https://github.com/MIS-examination/project

Front End :	HTML , CSS , JS
Viewing Engine :	EJS
Back End :	Node JS
Framework :	Bootstrap, Express, Mongoose (for ODM)
Database :	Mongodb

WORKS :

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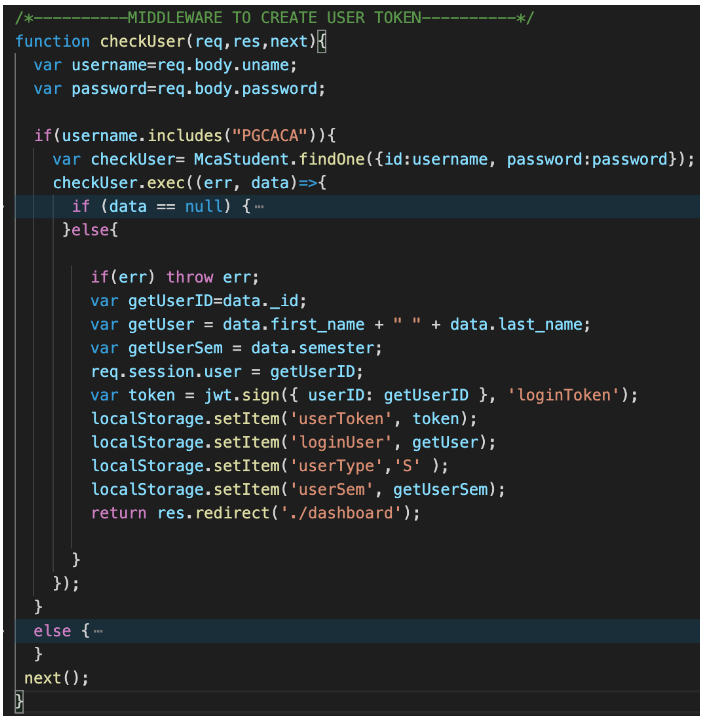
1) Authorization :



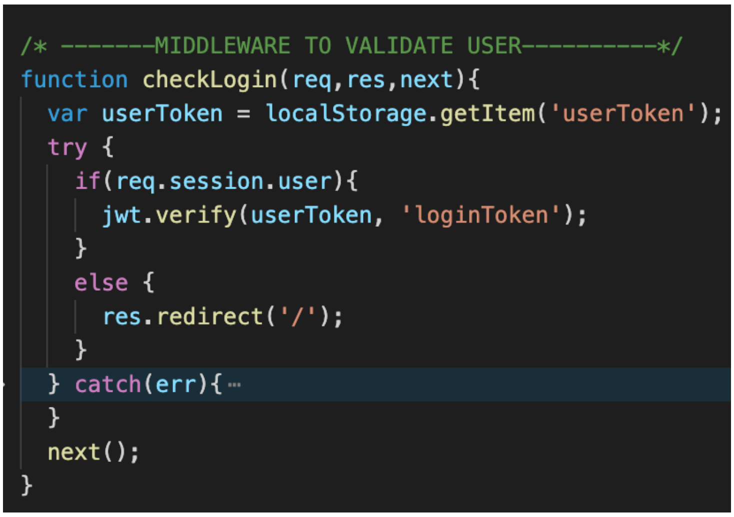
```
/*----------MIDDLEWARE TO CREATE USER TOKEN----------*/
function checkUser(req,res,next){
  var username=req.body.uname;
  var password=req.body.password;

  if(username.includes("PGCACA")){
    var checkUser= McaStudent.findOne({id:username, password:password});
    checkUser.exec((err, data)=>{
      if (data == null) {⋯
     }else{

        if(err) throw err;
        var getUserID=data._id;
        var getUser = data.first_name + " " + data.last_name;
        var getUserSem = data.semester;
        req.session.user = getUserID;
        var token = jwt.sign({ userID: getUserID }, 'loginToken');
        localStorage.setItem('userToken', token);
        localStorage.setItem('loginUser', getUser);
        localStorage.setItem('userType','S' );
        localStorage.setItem('userSem', getUserSem);
        return res.redirect('./dashboard');

      }
    });
  }
  else {⋯
  }
 next();
}
```

A Token is generated by the Object ID fetched from Database when a user logs in, along with that user type is also defined, if the user is a student(S) or a teacher(T). These info get stored in local storage for validation in each subsequent requests, allowing the user to access routes, services, and resources that are permitted with that token.

Single Sign On is a feature of JWT(JSON WEB TOKEN) is used to generate token,
i.e. only one user can access the site at a

time. If a new user try to log in, it logs in as the existing user. To resolve this issue "express-session" is used .

```
app.use(session({
  secret: ‘some secret text‘,
  resave: false,
  saveUninitialized: true}));
```

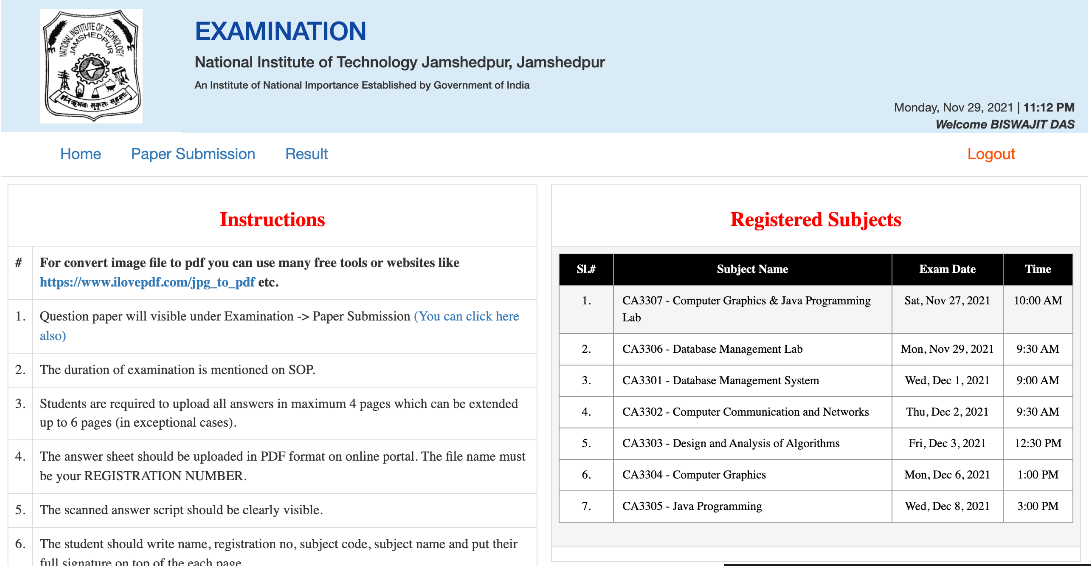


```
/* -------MIDDLEWARE TO VALIDATE USER----------*/
function checkLogin(req,res,next){
  var userToken = localStorage.getItem('userToken');
  try {
    if(req.session.user){
      jwt.verify(userToken, 'loginToken');
    }
    else {
      res.redirect('/');
    }
  } catch(err){⋯
  }
  next();
}
```

2) Student Dashboard :

In this page, Exam time schedule, based on logged in student's semester is displayed along with some online exam instructions. Only a logged in student can access this route.

Registered subjects are fetched from database in sorted order by the exam date. There is no post request on this page.



EXAMINATION

National Institute of Technology Jamshedpur, Jamshedpur

An Institute of National Importance Established by Government of India

Monday, Nov 29, 2021 | **11:12 PM**

Welcome BISWAJIT DAS

Instructions

#	**For convert image file to pdf you can use many free tools or websites like https://www.ilovepdf.com/jpg_to_pdf etc.**
1.	Question paper will visible under Examination -> Paper Submission (You can click here also)
2.	The duration of examination is mentioned on SOP.
3.	Students are required to upload all answers in maximum 4 pages which can be extended up to 6 pages (in exceptional cases).
4.	The answer sheet should be uploaded in PDF format on online portal. The file name must be your REGISTRATION NUMBER.
5.	The scanned answer script should be clearly visible.
6.	The student should write name, registration no, subject code, subject name and put their full signature on top of the each page.
7.	There will be strict check for similarity. If the concerned course faculty observes similarity among answer sheets then it may not be evaluated. The final decision in this regard taken by concern faculty.

Registered Subjects

Sl.#	Subject Name	Exam Date	Time
1.	CA3307 - Computer Graphics & Java Programming Lab	Sat, Nov 27, 2021	10:00 AM
2.	CA3306 - Database Management Lab	Mon, Nov 29, 2021	9:30 AM
3.	CA3301 - Database Management System	Wed, Dec 1, 2021	9:00 AM
4.	CA3302 - Computer Communication and Networks	Thu, Dec 2, 2021	9:30 AM
5.	CA3303 - Design and Analysis of Algorithms	Fri, Dec 3, 2021	12:30 PM
6.	CA3304 - Computer Graphics	Mon, Dec 6, 2021	1:00 PM
7.	CA3305 - Java Programming	Wed, Dec 8, 2021	3:00 PM

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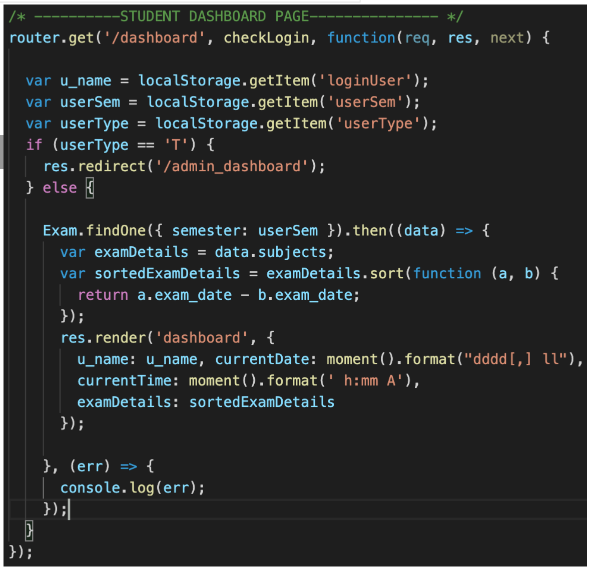


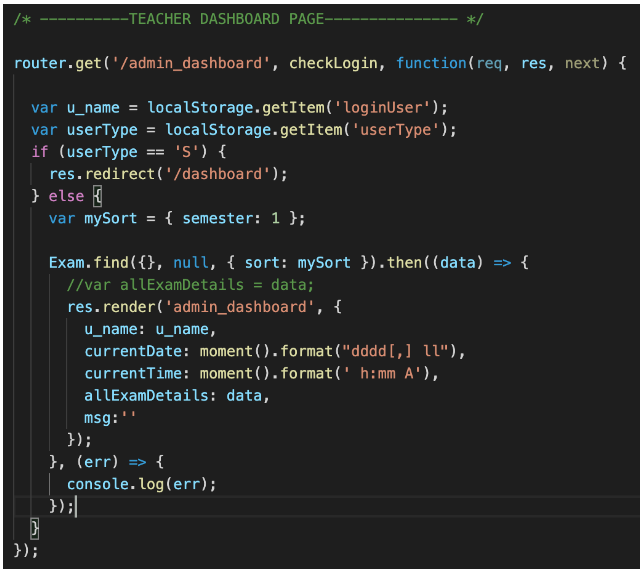
```
/* ----------STUDENT DASHBOARD PAGE--------------- */
router.get('/dashboard', checkLogin, function(req, res, next) {

  var u_name = localStorage.getItem('loginUser');
  var userSem = localStorage.getItem('userSem');
  var userType = localStorage.getItem('userType');
  if (userType == 'T') {
    res.redirect('/admin_dashboard');
  } else {

    Exam.findOne({ semester: userSem }).then((data) => {
      var examDetails = data.subjects;
      var sortedExamDetails = examDetails.sort(function (a, b) {
        return a.exam_date - b.exam_date;
      });
      res.render('dashboard', {
        u_name: u_name, currentDate: moment().format("dddd[,] ll"),
        currentTime: moment().format(' h:mm A'),
        examDetails: sortedExamDetails
      });

    }, (err) => {
      console.log(err);
    });
  }
});
```

checkLogin middleware function validates if the user is logged in or not. If the user is not logged in. If the user is not logged in it redirects to login page. It is present in every route.

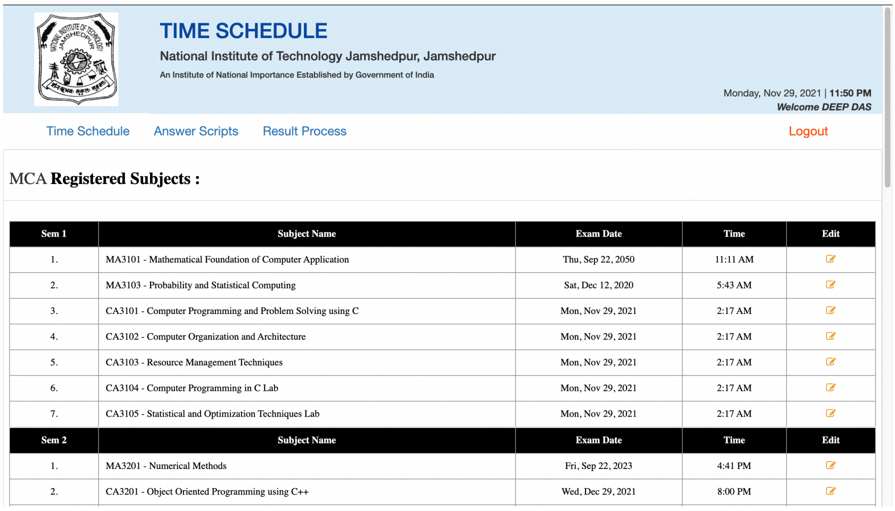
3) Teacher Dashboard :

After login in a Teacher lands on this page. Here all the semester details of MCA department is presented from the database. The dept. select option is not dynamic yet.

Registered subjects are fetched from database in sorted order by the semester. There is no post request on this page.



```
/* ----------TEACHER DASHBOARD PAGE--------------- */

router.get('/admin_dashboard', checkLogin, function(req, res, next) {

  var u_name = localStorage.getItem('loginUser');
  var userType = localStorage.getItem('userType');
  if (userType == 'S') {
    res.redirect('/dashboard');
  } else {
    var mySort = { semester: 1 };

    Exam.find({}, null, { sort: mySort }).then((data) => {
      //var allExamDetails = data;
      res.render('admin_dashboard', {
        u_name: u_name,
        currentDate: moment().format("dddd[,] ll"),
        currentTime: moment().format(' h:mm A'),
        allExamDetails: data,
        msg:''
      });
    }, (err) => {
      console.log(err);
    });
  }
});
```



TIME SCHEDULE

National Institute of Technology Jamshedpur, Jamshedpur

An Institute of National Importance Established by Government of India

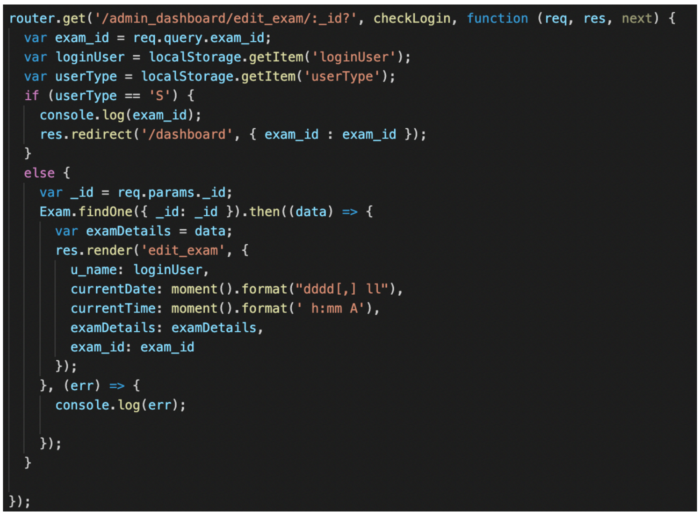
Monday, Nov 29, 2021 | **11:50 PM**

Welcome DEEP DAS

MCA **Registered Subjects :**

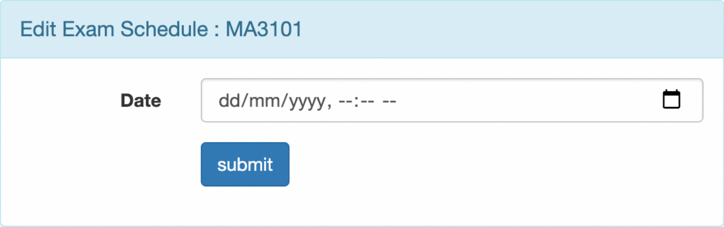
Sem 1	Subject Name	Exam Date	Time	Edit
1.	MA3101 - Mathematical Foundation of Computer Application	Thu, Sep 22, 2050	11:11 AM	✎
2.	MA3103 - Probability and Statistical Computing	Sat, Dec 12, 2020	5:43 AM	✎
3.	CA3101 - Computer Programming and Problem Solving using C	Mon, Nov 29, 2021	2:17 AM	✎
4.	CA3102 - Computer Organization and Architecture	Mon, Nov 29, 2021	2:17 AM	✎
5.	CA3103 - Resource Management Techniques	Mon, Nov 29, 2021	2:17 AM	✎
6.	CA3104 - Computer Programming in C Lab	Mon, Nov 29, 2021	2:17 AM	✎
7.	CA3105 - Statistical and Optimization Techniques Lab	Mon, Nov 29, 2021	2:17 AM	✎
Sem 2	**Subject Name**	**Exam Date**	**Time**	**Edit**
1.	MA3201 - Numerical Methods	Fri, Sep 22, 2023	4:41 PM	✎
2.	CA3201 - Object Oriented Programming using C++	Wed, Dec 29, 2021	8:00 PM	✎

On clicking the edit buttons , a dynamic get request is called where object ID of the subject provided by mongodb (61a3eae94524bc3241ac8a14) is passed as /:_id and exam id(MA3101) is passed as query. Then edit exam page for that specific subject is rendered.



```
router.get('/admin_dashboard/edit_exam/:_id?', checkLogin, function (req, res, next) {
  var exam_id = req.query.exam_id;
  var loginUser = localStorage.getItem('loginUser');
  var userType = localStorage.getItem('userType');
  if (userType == 'S') {
    console.log(exam_id);
    res.redirect('/dashboard', { exam_id : exam_id });
  }
  else {
    var _id = req.params._id;
    Exam.findOne({ _id: _id }).then((data) => {
      var examDetails = data;
      res.render('edit_exam', {
        u_name: loginUser,
        currentDate: moment().format("dddd[,] ll"),
        currentTime: moment().format(' h:mm A'),
        examDetails: examDetails,
        exam_id: exam_id
      });
    }, (err) => {
      console.log(err);

    });
  }

});
```

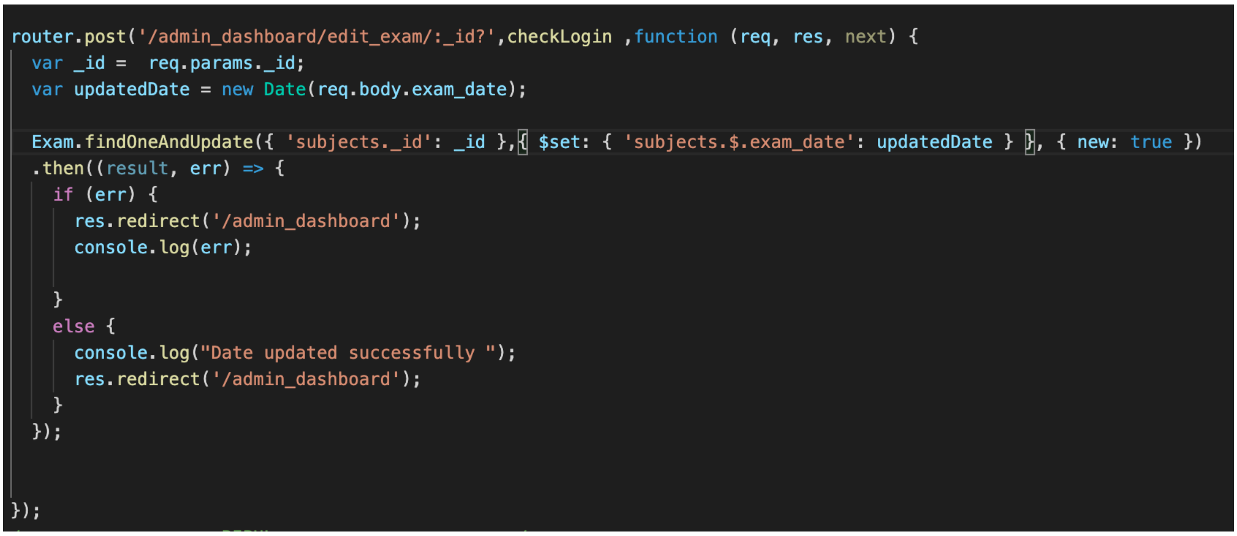
Eg : http://localhost:3000/admin_dashboard/edit_exam/61a3eae94524bc3241ac8a14?exam_id=MA3101



Edit Exam Schedule : MA3101

Date dd/mm/yyyy, --:-- --

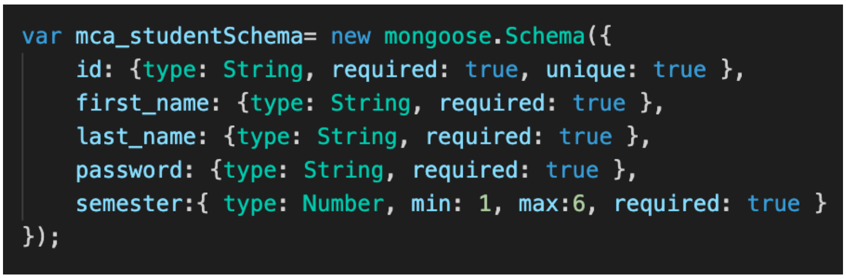
On clicking submit, A post request is called where it gets the subject's object id from the route's /:_id and update date and time of that subject and redirects to teacher dashboard



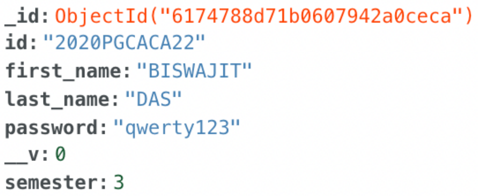
```
router.post('/admin_dashboard/edit_exam/:_id?',checkLogin ,function (req, res, next) {
  var _id =  req.params._id;
  var updatedDate = new Date(req.body.exam_date);

  Exam.findOneAndUpdate({ 'subjects._id': _id },{ $set: { 'subjects.$.exam_date': updatedDate } }, { new: true })
  .then((result, err) => {
    if (err) {
      res.redirect('/admin_dashboard');
      console.log(err);

    }
    else {
      console.log("Date updated successfully ");
      res.redirect('/admin_dashboard');
    }
  });


});
```

4) Schemas :

Students' records are generated based on mca_studentSchema

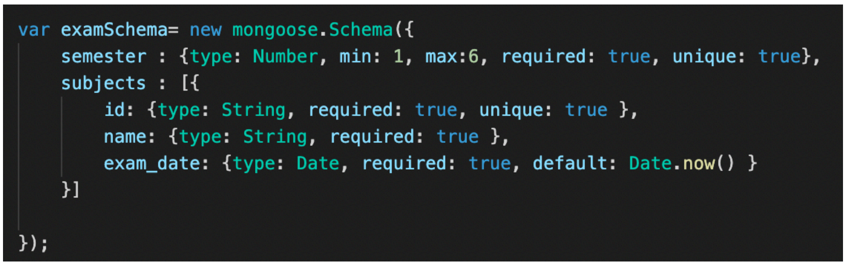


```
var mca_studentSchema= new mongoose.Schema({
    id: {type: String, required: true, unique: true },
    first_name: {type: String, required: true },
    last_name: {type: String, required: true },
    password: {type: String, required: true },
    semester:{ type: Number, min: 1, max:6, required: true }
});
```

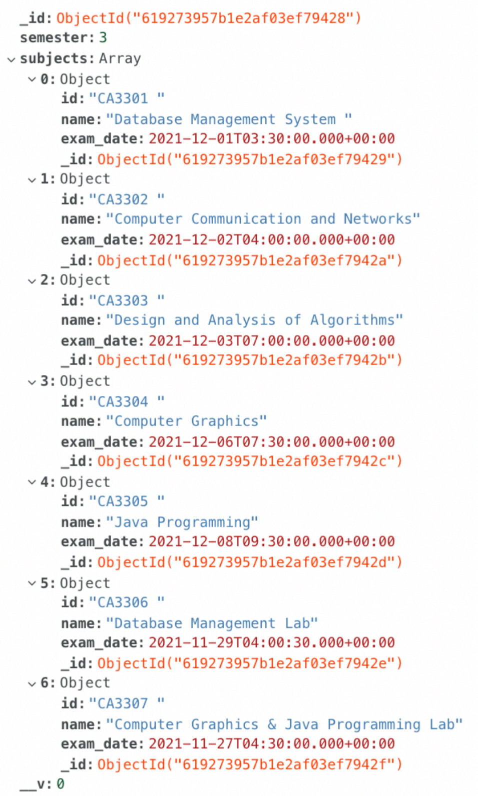


```
_id: ObjectId("6174788d71b0607942a0ceca")
id: "2020PGCACA22"
first_name: "BISWAJIT"
last_name: "DAS"
password: "qwerty123"
__v: 0
semester: 3
```

Exam Schedules are generated using examSchema

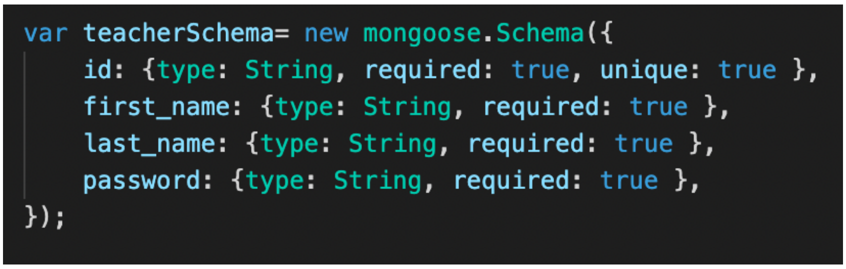


```
var examSchema= new mongoose.Schema({
    semester : {type: Number, min: 1, max:6, required: true, unique: true},
    subjects : [{
        id: {type: String, required: true, unique: true },
        name: {type: String, required: true },
        exam_date: {type: Date, required: true, default: Date.now() }
    }]

});
```

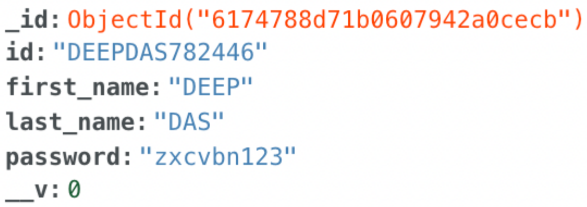


```
 _id: ObjectId("619273957b1e2af03ef79428")
 semester: 3
⌄subjects: Array
  ⌄0: Object
      id: "CA3301 "
      name: "Database Management System "
      exam_date: 2021-12-01T03:30:00.000+00:00
      _id: ObjectId("619273957b1e2af03ef79429")
  ⌄1: Object
      id: "CA3302 "
      name: "Computer Communication and Networks"
      exam_date: 2021-12-02T04:00:00.000+00:00
      _id: ObjectId("619273957b1e2af03ef7942a")
  ⌄2: Object
      id: "CA3303 "
      name: "Design and Analysis of Algorithms"
      exam_date: 2021-12-03T07:00:00.000+00:00
      _id: ObjectId("619273957b1e2af03ef7942b")
  ⌄3: Object
      id: "CA3304 "
      name: "Computer Graphics"
      exam_date: 2021-12-06T07:30:00.000+00:00
      _id: ObjectId("619273957b1e2af03ef7942c")
  ⌄4: Object
      id: "CA3305 "
      name: "Java Programming"
      exam_date: 2021-12-08T09:30:00.000+00:00
      _id: ObjectId("619273957b1e2af03ef7942d")
  ⌄5: Object
      id: "CA3306 "
      name: "Database Management Lab"
      exam_date: 2021-11-29T04:00:30.000+00:00
      _id: ObjectId("619273957b1e2af03ef7942e")
  ⌄6: Object
      id: "CA3307 "
      name: "Computer Graphics & Java Programming Lab"
      exam_date: 2021-11-27T04:30:00.000+00:00
      _id: ObjectId("619273957b1e2af03ef7942f")
 __v: 0
```

Teachers' records are generated using teacherSchema



```
var teacherSchema= new mongoose.Schema({
    id: {type: String, required: true, unique: true },
    first_name: {type: String, required: true },
    last_name: {type: String, required: true },
    password: {type: String, required: true },
});
```



```
_id: ObjectId("6174788d71b0607942a0cecb")
id: "DEEPDAS782446"
first_name: "DEEP"
last_name: "DAS"
password: "zxcvbn123"
__v: 0
```

Issues :

1) Time Zone provided by the heroku server is different from India, so the time does not match.

2) The passwords stored in database are not encrypted so there is a security risk.