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Mini Project Report
Of
Internet Technologies Lab (CSE 3262)

Integrated Academic Management System

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Integrated Academic Management System :-

***Abstract*-The Integrated Academic Management System (IAMS) is a robust software solution designed to streamline and enhance the management of academic institutions. Through its integrated modules, IAMS automates tasks, improves communication, and provides valuable insights for decision-making. Key features include student information management, faculty management, course management, examination management, and administrative functions. With its user-friendly interface and advanced analytics capabilities, IAMS offers a comprehensive solution for optimizing educational administration, ultimately contributing to improved student outcomes and institutional success.**

***Keywords:*Integrated Academic Management System, educational administration, software solution, automation, communication, decision-making, student information management, faculty management, course management, examination management, administrative functions, analytics, institutional success.**

I. MOTIVATION

The motivation behind developing the Integrated Academic Management System (IAMS) stems from the recognition of the challenges faced by academic institutions in managing their operations efficiently and effectively. Traditional methods of academic management, characterized by manual processes and fragmented communication channels, often lead to inefficiencies, lack of transparency, and security vulnerabilities.

IAMS aims to address these challenges by providing a comprehensive, integrated solution that streamlines administrative workflows, enhances communication channels, ensures data security and privacy, promotes transparency and accountability, and improves the overall user experience for all stakeholders. By leveraging technology and automation, IAMS empowers institutions to overcome the limitations of traditional management systems and embrace a more efficient and transparent approach to academic administration.

Furthermore, IAMS is driven by a commitment to advancing educational outcomes and institutional success. By providing administrators, educators, and students with the tools and insights they need to succeed, IAMS contributes to a more conducive learning environment and fosters a culture of academic excellence. Ultimately, IAMS is motivated by the belief that innovation in educational administration is essential for meeting the evolving needs of modern education and ensuring that academic institutions remain relevant and competitive in a rapidly changing world.

II. INTRODUCTION

In the dynamic realm of educational administration, the Academic Management Hub (AMH) emerges as a cornerstone innovation, reshaping the landscape of academic institutions worldwide. With the relentless march of technological progress and the increasing complexity of administrative tasks, there arises an urgent need for integrated solutions that streamline operations, foster collaboration, and elevate the academic experience for all stakeholders. In response to this imperative, AMH stands as a beacon of innovation, offering a comprehensive suite of tools and functionalities designed to empower administrators, educators, and students alike.

This paper serves to elucidate the pivotal role of AMH in modern educational administration, exploring its key features and capabilities that revolutionize the management of academic institutions. Through a detailed examination of its components, including the comprehensive dashboard, news and events section, student and faculty management modules, flexible course enrollment system, automated assessment and grading mechanisms, content management tools, and robust data security measures, this paper aims to provide a comprehensive understanding of how AMH drives efficiency, transparency, and excellence within educational ecosystems.

By delving into the multifaceted benefits of AMH, from empowering administrators with actionable insights to enhancing community engagement and fostering a culture of academic excellence, this paper seeks to underscore the transformative potential of integrated management solutions in shaping the future of education. Furthermore, it explores the broader implications of AMH in navigating the challenges of the digital age, from safeguarding data privacy to promoting inclusivity and accessibility in education.

Through this exploration, it becomes evident that AMH represents not merely a technological advancement but a catalyst for positive change within academic institutions. As we embark on this journey to unveil the transformative power of AMH, let us envision a future where educational administration transcends traditional boundaries, embracing innovation to create vibrant, inclusive learning communities that empower individuals to thrive in an ever-changing world.

III. PROBLEM STATEMENT

In the rapidly evolving landscape of educational administration, traditional methods of managing academic institutions are proving inadequate in meeting the dynamic challenges posed by the digital age. Fragmented communication channels, manual processes, and data security concerns hinder efficiency, transparency, and overall institutional effectiveness.
The reliance on paper-based academics management systems presents numerous challenges, including:

Data Security and Privacy Concerns: Issues related to data security and privacy pose significant concerns for academic institutions. The absence of robust data security measures and compliance protocols exposes institutions to risks such as data breaches, identity theft, and regulatory non-compliance, undermining trust and confidence in the integrity of the educational ecosystem.

Time-Consuming Administration: The manual processing of attendance data consumes significant administrative time and resources, detracting from more value- added tasks and impeding overall productivity.

Limited Visibility and Transparency: Traditional attendance tracking methods lack real-time visibility into attendance data, making it difficult for stakeholders to monitor attendance trends, identify patterns, and intervene promptly when necessary.

Need for Innovation and Transformation: There is an urgent need for innovation and transformation in educational administration to overcome these challenges and align with the evolving needs and aspirations of modern education. Academic institutions must adopt novel solutions that prioritize efficiency, transparency, data security, and compliance to uphold the trust and confidence of stakeholders in the integrity of the educational ecosystem.

IV. OBJECTIVES

Streamline Administrative Workflows: Develop a management solution that streamlines administrative processes, reduces manual tasks, and enhances efficiency in tasks such as student enrollment, faculty management, and course scheduling.

Enhance Communication Channels: Implement features that foster seamless communication among stakeholders, including administrators, faculty members, students, and parents, to improve collaboration, transparency, and decision-making.

Ensure Data Security and Privacy: Integrate robust data security measures and compliance protocols to safeguard sensitive information, mitigate risks of data breaches, and uphold trust and confidence in the integrity of the educational ecosystem.

Promote Transparency and Accountability: Implement features such as automated assessment and grading systems to promote transparency and accountability in academic evaluations, ensuring fairness and integrity in assessment processes.

Improve User Experience: Prioritize user experience by designing a user-friendly interface and intuitive navigation system that enhances accessibility and usability for all stakeholders, including administrators, faculty members, students, and parents.

V. METHODOLOGY

Requirement Analysis:
Conducted interviews and surveys with stakeholders (administrators, faculty, students) to gather requirements and understand their needs.
Analyzed existing systems and processes to identify pain points and areas for improvement.
Documented the functional and non-functional requirements for the new system.

Technology Selection:
Chose Django as the web framework for its robust architecture and suitability for handling forms, user authentication, and admin interface.
Selected Python for backend logic due to its readability and efficiency.
Utilized HTML and Bootstrap for front-end development to ensure accessibility and responsiveness across different devices.

System Design:
Designed the system architecture, including database structure, user interface, and navigation flow.
Created wireframes and mockups to visualize the user interface and gather feedback from stakeholders.
Defined the data model to efficiently store and manage information such as announcements, faculty details, student profiles, and course information.

Prototype Development:
Developed prototypes of key system features and functionalities using Django and Python for backend logic and HTML with Bootstrap for front-end development
Conducted usability testing with stakeholders to gather feedback and iterate on the design.

Development:
Developed the system iteratively, following the Agile development methodology.
Implemented user authentication and authorization mechanisms to control access levels for administrators and users.
Created CRUD (Create, Read, Update, Delete) functionalities for managing announcements, faculty details, and student profiles.
Implemented real-time update features for posting and managing announcements.

Testing:
Conducted unit tests to ensure the functionality of individual components.
Conducted integration tests to verify the interaction between different system modules.
Conducted system tests to validate the system against defined requirements and user acceptance criteria.
Conducted usability testing with stakeholders to ensure the system meets their needs and expectations.

Deployment:
Deployed the system in a controlled environment for pilot testing.Gathered feedback from users during pilot testing and addressed any issues or concerns.
Deployed the system to production after ensuring it meets performance, security, and usability standards.
Training and Support:
Provided training sessions for administrators and users to familiarize them with the system's features and functionalities.
Established a support mechanism to address user queries, resolve issues, and provide assistance with system usage.

Monitoring and Evaluation:

Monitored system performance, user feedback, and usage metrics post-deployment.
Conducted periodic evaluations to identify areas for improvement and enhancements.
Incorporated feedback and lessons learned into future iterations of the system to continuously improve its effectiveness and usability.

VI. IMPLEMENTATION

FORMS.PY:-

```
from django import forms
from django.contrib.auth.forms import UserCreationForm
from django.contrib.auth.models import User

class StudentSignUpForm(UserCreationForm):
    student_name = forms.CharField(max_length=100,
help_text='Enter your full name')
    registration_number = forms.CharField(max_length=50)
    roll_number = forms.CharField(max_length=50)

    class Meta:
        model = User
        fields = ('username', 'student_name', 'registration_number',
'roll_number', 'password1', 'password2')

    def save(self, commit=True):
        user = super().save(commit=False)
        user.first_name = self.cleaned_data['student_name']
        user.save()
        return user
```

MODELS.PY

```
from django.db import models
from django.contrib.auth.models import User

class Resource(models.Model):
    title = models.CharField(max_length=255)
    link = models.URLField()
    description = models.TextField(blank=True)

    def __str__(self):
```

```
        return self.title

class Announcement(models.Model):
    message = models.TextField()
    created_at = models.DateTimeField(auto_now_add=True)
    for_all = models.BooleanField(default=True)
    specific_student = models.ForeignKey(
        User, on_delete=models.CASCADE, null=True, blank=True)

    def __str__(self):
        if self.for_all:
            return f"BROADCAST: {self.message[:50]}..."
        else:
            return f"To {self.specific_student.username}:
{self.message[:50]}..."

class MarkQuerySet(models.QuerySet):
    def total_marks(self):
        from django.db.models import Sum
        return self.aggregate(total_marks=Sum('score'))['total_marks']

class MarkManager(models.Manager):
    def get_queryset(self):
        return MarkQuerySet(self.model, using=self._db)

    def total_marks(self):
        return self.get_queryset().total_marks()

class Mark(models.Model):
    GRADE_CHOICES = (
        ('A', 'A'),
        ('B', 'B'),
        ('C', 'C'),
        ('D', 'D'),
        ('F', 'F'),
    )

    student = models.ForeignKey(User,
on_delete=models.CASCADE)
    assignment_title = models.CharField(max_length=255)
    score = models.IntegerField()
    grade = models.CharField(max_length=1,
choices=GRADE_CHOICES, blank=True, null=True)

    objects = MarkManager()

    def calculate_grade(self):
        if self.score >= 90:
            return 'A'
        elif self.score >= 80:
            return 'B'
        elif self.score >= 70:
            return 'C'
        elif self.score >= 60:
            return 'D'
        else:
            return 'F'

    def save(self, *args, **kwargs):
        if not self.grade:
            self.grade = self.calculate_grade()
        super().save(*args, **kwargs)

    def __str__(self):
        return f"{self.assignment_title} - {self.student.username}
({self.score}) - Grade: {self.grade}"
from django.db import models
from django.contrib.auth.models import User

class Course(models.Model):
    title = models.CharField(max_length=255)
    description = models.TextField()

    def __str__(self):
        return self.title

class Enrollment(models.Model):
    student = models.ForeignKey(User,
on_delete=models.CASCADE)
    course = models.ForeignKey(Course,
on_delete=models.CASCADE)
    enrolled_at = models.DateTimeField(auto_now_add=True)

    def __str__(self):
        return f"{self.student.username} enrolled in {self.course.title} at
{self.enrolled_at}"

class Attendance(models.Model):
    STATUS_CHOICES = (
        ('Present', 'Present'),
        ('Absent', 'Absent'),
    )

    student = models.ForeignKey(User,
on_delete=models.CASCADE)
    course = models.ForeignKey(Course,
on_delete=models.CASCADE)
    date = models.DateField()
    status = models.CharField(max_length=10,
choices=STATUS_CHOICES)

    def __str__(self):
        return f"{self.student.username} - {self.course.title} -
{self.date} - {self.status}"
```

URLS.PY

```
from django.contrib import admin
from django.urls import path
from myapp import views

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', views.my_login_view, name='login'),
    path('home/', views.home_view, name='home'),
    path('register/', views.register, name='register'),
    path('logout/', views.logout_view, name='logout'),
    # path('submit_query/', views.submit_query,
name='submit_query'),
]
```

VIEWS.PY

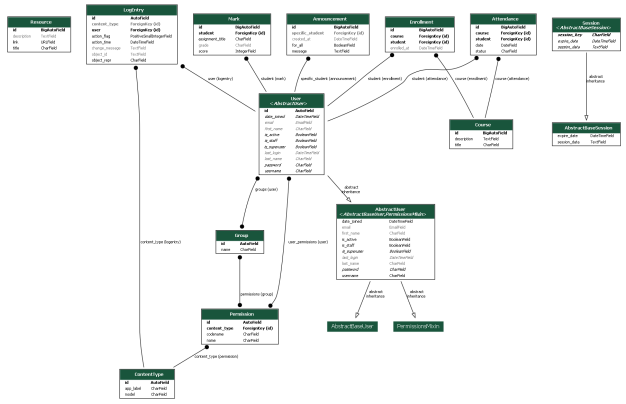
```
from django.shortcuts import render, redirect
from django.contrib.auth import authenticate, login
from django.contrib.auth.decorators import login_required
from django.contrib import messages
from django.contrib.auth import logout
from .forms import StudentSignUpForm
from .models import Resource, Mark, Announcement, Enrollment,
Attendance
import datetime
from django.db.models import Sum

def my_login_view(request):
    if request.user.is_authenticated:
        if request.user.is_staff:
```

```
            return redirect('/admin/')
        else:
            return redirect('home')
    if request.method == "POST":
        username = request.POST.get('username')
        password = request.POST.get('password')
        user = authenticate(request, username=username,
password=password)
        if user is not None:
            login(request, user)
            if user.is_staff:
                return redirect('/admin/')
            else:
                return redirect('home')
        else:
            messages.error(request, 'Invalid username or password.')

    return render(request, 'login.html')


def home_view(request):
    resources = Resource.objects.all()
    marks = Mark.objects.filter(student=request.user)
    total_marks =
marks.aggregate(total_marks=Sum('score'))['total_marks']
    announcements = (Announcement.objects.filter(for_all=True) |
Announcement.objects.filter(
        specific_student=request.user)).order_by('-created_at')

    # Fetch course enrollment for the current user
    enrollments = Enrollment.objects.filter(student=request.user)

    # Fetch attendance records for the current user
    today = datetime.date.today()
    attendance = Attendance.objects.filter(student=request.user,
date=today)

    context = {
        'user': request.user,
        'welcome_message': "STUDENT PORTAL",
        'resources': resources,
        'marks': marks,
        'total_marks': total_marks,
        'announcements': announcements,
        'enrollments': enrollments,
        'attendance': attendance,
    }
    return render(request, 'home.html', context)


def register(request):
    if request.method == 'POST':
        form = StudentSignUpForm(request.POST)
        if form.is_valid():
            user = form.save(commit=False)
            user.save()
            login(request, user,
backend='django.contrib.auth.backends.ModelBackend')
            return redirect('home')
    else:
        form = StudentSignUpForm()
    return render(request, 'register.html', {'form': form})


def logout_view(request):
    logout(request)
    return redirect('login')
```

DIRECTORY:

```
itl_mini_proj/
├── .git/
├── jobapp/
│   ├── migrations/
│   ├── static/
│   ├── __pycache__/
│   ├── admin.py
│   ├── apps.py
│   ├── backend.py
│   ├── forms.py
│   ├── models.py
│   ├── tests.py
│   ├── views.py
│   └── __init__.py
├── myapp/
│   ├── migrations/
│   ├── static/
│   ├── __pycache__/
│   ├── admin.py
│   ├── apps.py
│   ├── backend.py
│   ├── forms.py
│   ├── models.py
│   ├── tests.py
│   ├── views.py
│   └── __init__.py
├── myproject/
│   ├── __pycache__/
│   ├── asgi.py
│   ├── settings.py
│   ├── urls.py
│   ├── wsgi.py
│   └── __init__.py
├── static/
├── templates/
│   ├── admin/
│   ├── home.html
│   ├── login.html
│   └── register.html
├── venv/
├── .DS_Store
├── db.sqlite3
├── manage.py
└── README.md
```

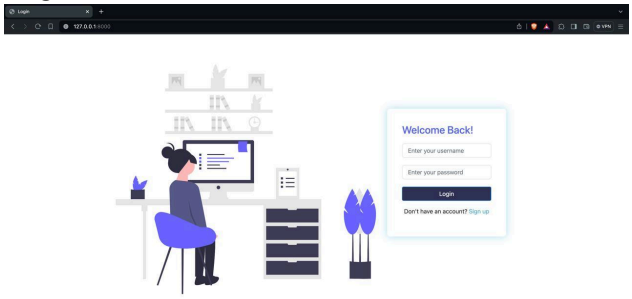
ER diagram:-



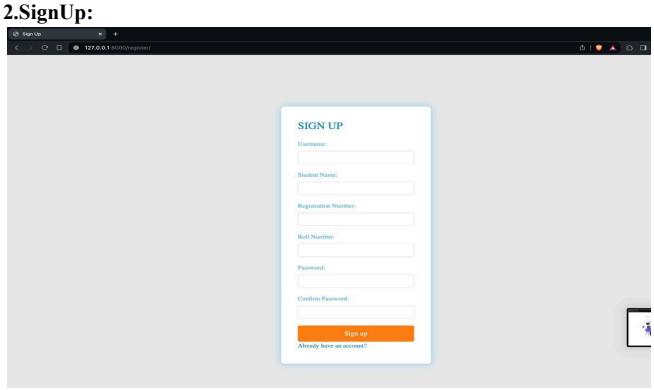
VII.RESULTS AND SNAPSHOTS:

User Panel :

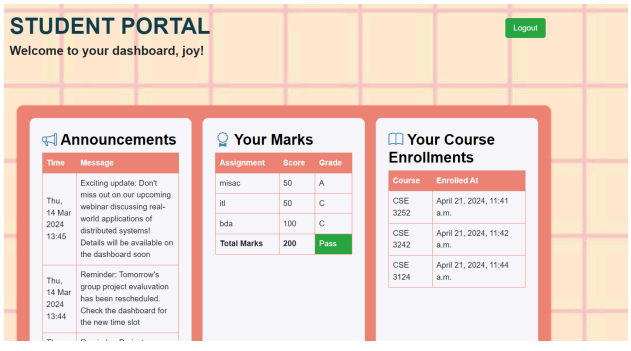
1.Login:-

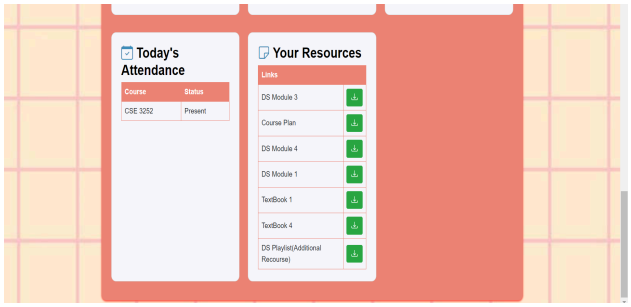


2.SignUp:



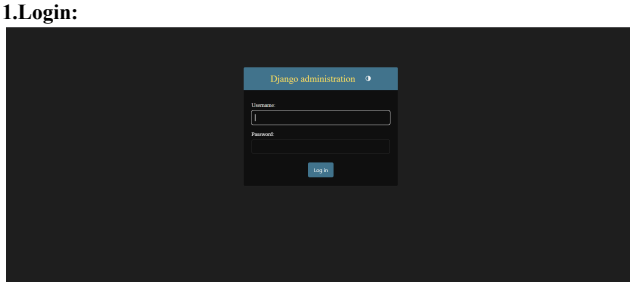
3.Home Page:-



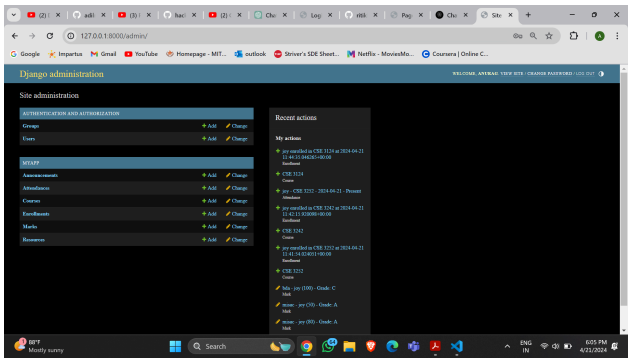


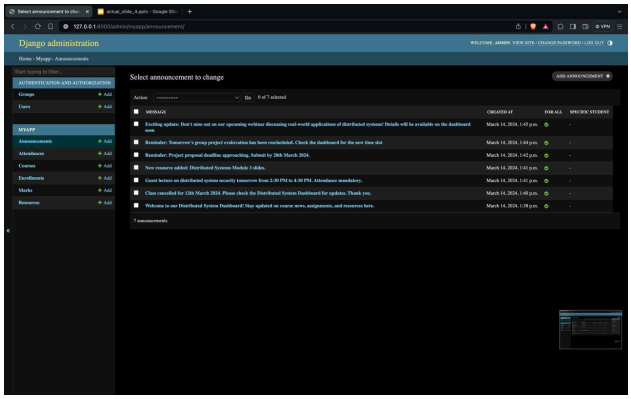
Admin Panel :

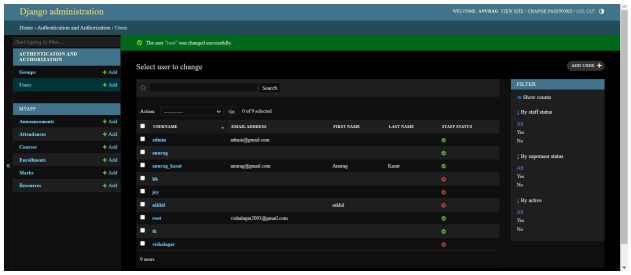
1.Login:

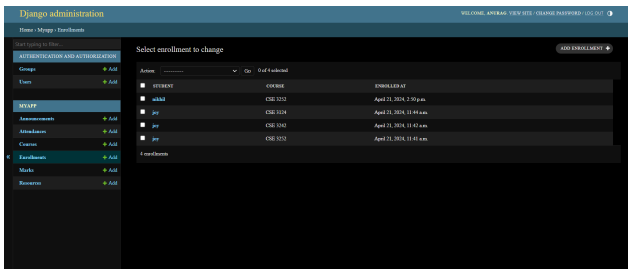


Others:









VIII. CONCLUSIONS:

In conclusion, the Academic Management System serves as a cornerstone for revolutionizing academic administration within the Computer Science Department. Its multifaceted functionalities not only streamline administrative operations but also significantly enhance the overall academic experience for both faculty and students.

Firstly, by centralizing administrative tasks such as announcement management, faculty data handling, and student information management, the system ensures efficiency and accuracy. Admins can effortlessly update and manage various aspects of academic operations from a single, intuitive platform, reducing manual effort and minimizing the likelihood of errors. This streamlined process not only saves time but also enhances the reliability and integrity of academic information.

Moreover, the user-friendly interface of the Student Panel greatly enhances the student experience by providing convenient access to essential academic information. Students can easily navigate through announcements, view faculty profiles, and access course details without the hassle of navigating multiple platforms. This accessibility fosters a more seamless and productive academic journey, empowering students to focus more on their studies and less on administrative logistics.

Furthermore, the system's robust data management capabilities enable administrators to gain valuable insights into faculty and student demographics, project participation, and course enrollment. These insights facilitate informed decision-making and strategic planning within the department, allowing for better resource allocation and optimization.

Overall, the implementation of the Academic Management System represents a significant step forward in modernizing academic administration, fostering efficiency, accessibility, and data-driven decision-making. Its comprehensive functionalities contribute to a more seamless and productive academic environment, benefiting both faculty and students alike.

IX. LIMITATIONS & POSSIBLE IMPROVEMENT

Performance Optimization: Analyze and optimize database queries, especially as the data volume increases. Use tools like Django Debug Toolbar to identify performance bottlenecks.Implement caching mechanisms to reduce the load on the database and improve response times.

Security: Implement additional security measures such as HTTPS, CSRF protection, and content security policies.Regularly update dependencies and frameworks to patch security vulnerabilities.

User Experience Enhancement: Implement AJAX to improve the user experience by making certain actions asynchronous.Enhance the frontend with modern JavaScript frameworks like React or Vue.js for richer user interactions.

Automated Testing: Expand test coverage with unit tests, integration tests, and end-to-end tests to ensure the reliability of the application.Integrate continuous integration/continuous deployment (CI/CD) pipelines for automated testing and deployment.

X.REFERENCES:

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