

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

YELAHANKA, BENGALURU - 560064



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROJECT BASED LEARNING

Odd Semester 2021-22

Synopsis of

“Automated Rent Due Remainder”

Computer Networks and Security – 18CS52

Application Development using Python – 18CS55

V Semester ‘B’ section

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2021-2022

INSTITUTE VISION

To emerge as one of the finest technical institutions of higher learning, to develop engineering professionals who are technically competent, ethical and environment friendly for betterment of the society.

INSTITUTE MISSION

Accomplish stimulating learning environment through high quality academic instruction, innovation and industry-institute interface.

DEPARTMENT VISION

To develop technical professionals acquainted with recent trends and technologies of computer science to serve as valuable resource for the nation/society.

DEPARTMENT MISSION

Facilitating and exposing the students to various learning opportunities through dedicated academic teaching, guidance and monitoring.

PROGRAM EDUCATIONAL OBJECTIVES

1. Lead a successful career by designing, analyzing and solving various problems in the field of Computer Science & Engineering.
2. Pursue higher studies for enduring edification.
3. Exhibit professional and team building attitude along with effective communication.
4. Identify and provide solutions for sustainable environmental development.

Computer Networks and Security – 18CS52

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	ASK YOUR FACULTY ABOUT THIS

Application Development using Python – 18CS55

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Project to Program Outcomes (PO) Mapping

Project Name: Automated Rent due Remainder

COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
DAA	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
OOC	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓

Program outcomes (POs):

PO1	Engineering knowledge: Apply the knowledge of Mathematics, Science, Engineering fundamentals and an engineering specialization to the solution of complex engineering problems
PO2	Problem analysis: Identify, formulate, review research literature, and analyse complex Engineering problems reaching substantiated conclusions using first principles of mathematics, Natural sciences and engineering sciences
PO3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the Information to provide valid conclusions
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern Engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for Sustainable development
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings

PO10	Communication: Communicate effectively on complex engineering activities with the engineering Community and with society at large, such as, being able to comprehend and write effective reports And design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project management and finance: Demonstrate knowledge and understanding of the Engineering and management principles and apply these to one's own work, as a member and Leader in a team, to manage projects and in multidisciplinary environments.
PO12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Project to Program Specific Outcomes (PSO) Mapping

Project Name: Automated Rent Due Remainder

COURSE	PSO1	PSO2
CN	✓	✓
ADP	✓	✓

Program Specific Outcomes (PSOs):	
PSO1	Analyze the problem and identify computing requirements appropriate to its solution.
PSO2	Apply design and development principles in the construction of software systems of varying complexity.

Abstract:

A rent reminder is a letter or notice that is sent out to tenants either before their rent is due or after their rent is late. The point of this process is to gently remind tenants that they need to pay rent without including any type of threat of consequences. This letter will give tenants a gentle reminder that they forgot to pay rent, and it will open communication lines to paying rent if they have an obstacle preventing payment.

Introduction:

Our project is a take on reducing the toil put into the rent reminding process. It focuses on reducing the work done by the owner by automating it with the help of technology. Our project will give the tenants a gentle reminder asking them to pay the rent. Our objective is to build a project to remind the tenants to pay the rents by sharing the mails with the bill documents, to improve the relationship between the tenant and the owners.

Motivation:

The whole rent collection process can be tedious and unsure. Our motive is to

- Reduce elbow grease going into the process by automating it.
- Build a project to make the rent reminding process less fiddly.
- Build a healthy relationship between the owner and tenant.

Existing System:

- Physical rent reminding system wherein most of the time the owner goes in person to collect the rent.
- The existing system only provides calls and texts as a reminder for the tenants.

Limitations of Existing System:

- The existing systems doesn't have any features to account for the relationships between the tenant and the user.
- The contents of the message cannot be altered.
- The existing systems fail to use mails which can help attach and send some necessary files.
- The existing systems doesn't provide any mode of online payment through messages or mail.

Hence, there is need of reformation of the system with more advantages and flexibility.

Proposed System:

The project we are creating is completely computerized system to tackle the limitations of the existing systems.

- To automate the physical rent reminding process
- Create a user-friendly website to enter the data.
- The content of the message can be change based on the event.
- Provide a link along with the account details to make the payment.
- Attach the detailed bill and some important documents.
- Wish the tenants during birthdays and festivals to improve the owner and tenant relationships.

System Requirement Specifications (Functional & Non-Functional):

Functional requirements:

- The system should specify and allow the user to input data regarding the monthly rental status, tenant details, due date of the bills, amount to be paid etc.
- The system should have a user-friendly interface to allow the user to enter the above details.
- The system should be able to use the above entered data to create a database/excel sheet.
- The system should be able to use the database to clean the data and use its values in the coding process.
- The system should be able to send automated mail and with all the required details.
- The system should be able to manage data of multiple tenants of the user.

Non-functional requirements:

- The system is portable as it can be used through multiple devices..
- The system should run without any stutters or lag.
- The system should provide complete privacy and security to the data entered by the user.

Proposed Methodology:

- We will use the website to get the data from the owner.
- We then use the data to create a database or an excel sheet.
- We will use the excel sheet and some data manipulation libraries (such as pandas) to manage the data.
- We use python code to specify the constraints and the conditions to make the program adhere to the motivation.
Use application interface programs or API's or the SMTP libraries (smtplib) to be able to send mails

Abstract:

Computer Networks and Security (CNS):

- A computer network is a set of computers sharing resources located on or provided by network nodes. The computers use common communication protocols over digital interconnections to communicate with each other. These interconnections are made up of telecommunication network technologies, based on physically wired, optical, and wireless radio-frequency methods that may be arranged in a variety of network topologies.
- As we are using mails to send the messages, we make use of the SMTP (Simple Mail Transfer Protocol).
- An application programming interface (API) is a connection between computers or between computer programs. It is a type of software interface, offering a service to other pieces of software. A document or standard that describes how to build or use such a connection or interface is called an API specification. A computer system that meets this standard is said to implement or expose an API. The term API may refer either to the specification or to the implementation.

Application Development using Python (ADP):

- Python is an interpreted high-level general-purpose programming language. Its design philosophy emphasizes code readability with its use of significant indentation. Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.
- We use simple and efficient python code along with libraries like Pandas and Numpy
- The smtplib module defines an SMTP client session object that can be used to send mail to any internet machine with an SMTP or ESMTP listener.
- The pywhatkit library enables us to be able to do many tasks (in our case sending a message) using the application WhatsApp

References:

- **Computer Networking : A Top-Down Approach 6Th Edition**
– James F. Kurose and Keith W. Ross
- Al Swigert, “Automate the Boring Stuff with Python”, 1stEdition, No Starch Press, 2015.
- <https://www.dialmycalls.com/property-management/rent-reminder-app.>
- <https://rentprep.com/landlord-tips/friendly-rent-reminder/>
- <https://www.nmhc.org/research-insight/nmhc-rent-payment-tracker/>