

Apartment management system analysis and design

Design



The requirements of the AMASS require a tool be built for a local alluding management company wishing to automate many of the interactions between tenant, landlord and apartment management staff. In addition to just handling rent money exchange, the system needs to keep track of the entire services apartment owners offer to their tenants such as maintenance, basic inspection and transfer of tenants. The project proved to be a large undertaking as we spent a significant amount of time delving into the details of what the maintenance an apartment building requires and all of the rent laws in Pennsylvania.

The amount of work required significant breakdown by services. We had team members who worked on rent interactions, inspection processes, maintenance and the unfortunate possibility that a tenant" s lease might be terminated, either by the tenants or the landlord" s choice. The following design document reflects all of those features and more. For the group members that have never lived in an apartment, this project proved to be quite the learning experience. We hope the following can accurately portray a sample of what such a software suite would require and how it could be coded to become a reality. System Analysis 1 .

Title: Analysis and Design of an Apartment Management System 2. The Problem Statement A small Apartment Rental company would like to create a management system, common for every apartment blocks distributed by Philadelphia and towns around. (a) Overall goals of the system The overall goals of the system are to keep track of tenant maintenance requests, tenant record, document and contract management, to make easier to the tenant and controlling the rental payment. (b) Context and Importance of the

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systematizing Wet, Andrew Messing, David Fernando Glenda, Nathan
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It is critical that any apartment rental company to control the expenses of the apartment management and tracking the rental payment for the tenants. Managers complain that tenants often forget to pay the rent on time, and some of them are even difficult when it comes to communicating or being localized. An on-line system which improves the communication between property managers and tenants will serve as a reminder for making on-line payments obligations and in case of delays, and to warn them about it, instantly. Tenants complain that managers are slow in problem solving and sometimes they are difficult to localize.

An on line system to make request about maintenance problems allows managers to be more effective to resolve the problem and the central management to be able to plan expenses, to contract or hire some services at the best price and put on disposition to very apartment manager the company which would help with the problem. IN-scope: AMASS will include only tenants and their requests and obligation, rental payments, apartment maintenance services as plumbers, windows, insects, etc. , building maintenance service such as gardening, roof, central heating, etc, and contract management as new tenant contract, current tenant renewals.

It also includes requests and reports from the managers to the central administration and service contract from the central administration to the managers. OUT-scope: JAMS (Small Apartment Management System) will not include a central accounting system. 3. Requirements 3. 1 Functional

Requirements (partial list) The system will be password-protected. AMASS will be a multi-user system where every user must log in. AMASS needs to perform the following functions:

Tenants to the manager system:

- (1) Request a change of apartment.
- (2) Request a maintenance petition.
- (3) Complaints.
- (4) Pay the rent on-line.

Manager System to the tenants

- (1) Add a new tenant and make and managing his/her contract.
- (2) Warn and report any tenant about his/her rental payment.
- (3) Report any interesting information (new services, taxes, etc)
- (3) Manage the tenant maintenance request, and reporting about it.

Manager System to a manager:

- (1) Report about any tenant maintenance tasks.
- (2) Report about any periodical building maintenance.
- (3) Pick up the manager request to the central administration.

Manager System to Central Administration:

- (1) Report about the tenant rent payments.
- (2) Report about the maintenance services.
- (3) Request available services.
- (4) Report and send tenant contract or documents.

3. 2 Data requirements (Partial List) For clients, keep track of client's name, address, business phone, home phone, cell phone, outstanding balance, starting date, and business type. The business type is One of S-corp., C-Corp., Partnership, LLC, ALP, Slipperiest, Estate, Trust, Non-profit, Individual, Other. For each billable item, JAMS will keep track of item#, date entered, description, initial amount, status, and balance. Billable items are either monthly service charge or there special service charge.

For the latter case, the name and the fee of the service is recorded. For each invoice, JAMS will need to keep track of invoice#, invoice date, total billing amount

from all the billable items which are not marked as Paid In Full. For each payment, JAMS will keep track of payment#, payment date, description, amount, payment type, check#, and bank name.

3. 3 Business Rules and Logic (Partial List)

- (1) The outstanding balance off client will always reflect the summation of balances f all the billable items.
- (2) When a new billable item is created, initial amount and balance are zero. Later when a payment is made, the initial amount remains the same, but balance must be reduced by the amount of payment amount.
- (3) The status of billable items must be properly changed its value. Initially, when the item is created, the STATUS is Un-invoiced. When an invoice is sent out, the STATUS becomes invoiced. When the item is paid in full, the STATUS becomes Paid in-full. When the tenant is deceased or other circumstances arise, the STATUS will become payment-in-process.) When the item is paid by only by partially, the STATUS becomes Paid-unpartisan. The state changes need to be automatic. A billable item could also be discounted or cancelled.
- (5) The total billable amount is derived as the summation of current unpaid billable items.
- (6) JAMS will be used by multiple accountants, and thus some important activities must be noted on who recorded or changed the record with the last update date.
- (7) When a request for a sublease is sent out, the system will then process the request. With regard to the information the system will either approve or decline the request.

3.

Non-functional requirements Requirements on usability, reliability, performance, supportability, security, recovery, interface, implementation, operation, and legal.

- (1) The system will be a screen-based application.
- (2) Menus should be organized in a hierarchical manner (usability)
- (3) The

system will be password-protected. (Security) (4) JAMS will be backed up daily. (Back up) 3. 5 Other Assumptions (What are the assumptions of the system? What are HOW and SW constraints? Are there any implementation constraints?) (1) We will assume JAMS will be used by a small accounting firm in a real-world setting.) JAMS runs on a client/server environment, running Windows Server as SO. Fang Wet, Andrew Messing, David Fernando Glenda, Nathan Baseman Group Project Submission 6/10/2010 8 (3) The underlying DB system is Microsoft Access (4) State specific rental laws will be based on Pennsylvania laws, should any discrepancies arrive. (5) Buildings affected will not be rent-controlled units. 4. Examples of system input/output, etc. (1) A tenant pays rent by a personal check. (2) A tenant wants to sublease an apartment before completing the contract. (3) A tenant rents an apartment. (4) A staff adds new tenant information.

Examples of system output: (1) System prints tenant information including payment history by tenant requests. (2) Payment reports comply with local tax codes. (3) System keeps logs of rental unit history. Past and present tenants. (4) System maintains information regarding regular unit inspections and compliance with tenant; insuring units remain up to code. 5. Knowledge Acquisition The problem is an Analysis and Design project. First we will develop our requirements based on our common sense and the current knowledge. After that, we will consult with an actual accounting office to validate our requirements. Software and/or hardware involved We will use Rational Rose for developing all the ML diagrams. Microsoft Access will be used when the system needs to be prototyped to get the ideas for screen developments. The application itself is PC-based running on XP. 7. Proposed

Deliverables and work plans We intend to turn in a complete set of ML diagrams along with supporting documentation. We will also put together a report describing our experience with analyzing the current process, what we were able to learn from our study, known pitfalls, remaining questions after project, and any recommendations on how to improve the current system.

Known References (so far) References at this point will be drawn from personal experiences and widely available resources on laws and regulations regarding residential rental units. Most team members have lived in an apartment building for at least a portion of their lives. Pennsylvania state law has rules regarding the treatment and maintenance of a rental unit, and the rights and responsibilities of tenant. Codes can be found here for [http://www. Rental. Com/phenolphthalein's](http://www.Pennsylvania.gov/phenolphthalein's). HTML Pennsylvania laws.

Laws differ from state to state but for this project we will assume PA regulations. Fang submission 6/10/2010 Paymasters Process credit card payment Add inspector Inspector Send out notifications Record pest control Record emergency test Documentaries resister Process lease termination Process tenant's apartment change request Process tenant registration Schedule inspection Enter inspection results Manager Record regular maintenance Request lease termination Request apartment change Send on-line registration Requests inspection Submit feedback form Request maintenance Pay rent

Check payment status Login Staff Renew lease Run Credit Report Manager Send eviction notice Send renewal notice Edit apartment information

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Schedule visit Prospect Tenant Send rental application Tenant Landlord

Check room availability Use Case Diagramming Wet, Andrew Messing, David Fernando Glenda, Nathan Use Case Descriptions Use Case Name: Schedule visit Actor(s): Prospect Tenant Purpose: Booking landlord time for visiting the apartments. Overview: Prospect tenant (after a visitor phone petition) chooses a date and time Use Case Name: Send rental application Purpose: Renting an apartment

Overview: Prospect tenant can rent an apartment sending the solicitation form and required digital documents. Prospect tenant must provide a credit card to pay the security deposit and prepaid rent. Use Case Name: Check payment status Actor(s): Landlord, Staff, Manager Purpose: To clearly know the payment status of an apartment. Overview: Landlord can check the payment status to know whether the tenant pays the rent or the apartment payment is on time. Use Case Name: Check room availability Actor(s): Landlord, Tenant, Staff, Manager Purpose: To check the apartment availability and basic information. Overview:

Landlord can check whether the apartment is available and view the basic information related to the apartment. Use Case Name: Request inspection Actor(s): Tenant, Staff, Manager Purpose: To submit a request to inspect the building. Overview: Shows the process of requesting inspections. Tenant will submit the request in order to be processed by the landlord. Use Case Name: Request maintenance Purpose: To submit a request to fix accidental apartment problems. Overview: Shows the process of requesting maintenance. Tenant will make an appointment, set a schedule, and fill out a maintenance form for repairing the accidental maintenance robbers.

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Fang Wet, Andrew Messing, David Fernando Glenda, Nathan 12 Use Case

Name: Submit feedback form Purpose: To provide a real-time feedback.

Overview: After the accidental maintenance, tenants will fill out a feedback form and submit it. This form will help apartment managers improve their work.

Use Case Name: Request an apartment change Purpose: Requesting the landlord for moving from the present apartment to another Overview:

Tenant chooses a new apartment and the date to move and send the

solicitation to the landlord for studying Use Case Name: Request lease termination

Purpose: Requesting the landlord for moving out from the present apartment and finishing the lease. Overview: Tenant report landlord the date to move

out. Purpose: Allows Customer to make payments online. Overview:

Customers use the AMASS to pay the rent. Use Case Name: Login Actor(s):

Tenant, Landlord, Staff, Manager Purpose: To use different levels of security

access to protect user" s information. Overview: Based on the different

security levels of users, the system only provides proper information to

users. Use Case Name: Edit apartment information Actor(s): Staff, Manager

Purpose: To manage apartment information.

Overview: Staff or manager check/update apartment information, such as

rental fee. Use Case Name: Process tenant registration Purpose: Renting an

apartment for a new tenant Overview: Landlord enters the entire tenant" s

data and the Document Manager System is sent all the necessary data to

generate the lease. Fang Wet, Andrew Messing, David Fernando Glenda,

Nathan Baseman Group Project Submission 6/10/2010 13 Use Case Name:

Process lease termination Purpose: Releasing the apartment, calculating the

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amount the former tenant will get or pay and making the Document Manager System know about the lease orientation.

Overview: Landlord enters any damage to the apartment and the apartment conditions or required services to be in perfect conditions. The system calculates the former tenant's final balance. Use Case Name: Renew the lease Actor(s): Automatic process Purpose: Report to the tenant the lease renewal and any increase in the rent. Overview: 70 days before the lease expires, the system report to the tenant, the lease will be automatically renewed and the new rent. Use Case Name: Send renewal notice Purpose: To send an email to notify tenant that the lease is expiring.

Overview: Staff manager sends an email to remind tenant to renew the apartment lease. Use Case Name: Run Credit Report Actor(s): None, everyday process Purpose: Keep tenants reported about the payment status. Overview: Runs a credit report on tenants to ensure that all tenants have settled their debts and are able to pay rent, report about fines for lateness, etc. Use Case Name: Process tenant's apartment change request Overview: The landlord accepts the change petition, so a new lease must be signed. Use Case Name: Record regular maintenance Purpose: To make sure each tenant knows the maintenance schedule.

Overview: An email about regular seasonal/annual maintenance will be sent to all the tenants in order to notify tenants in advance for the inconvenience, so they can make a slight change for their schedule. Use Case Name: Schedule inspection Purpose: To program an external inspection of the building. Overview: Landlord selects an external inspector and fixes the

inspection date and time. The inspection is notified to the tenants. Fang Wee, Andrew Messing, David 14 Use Case Name: Enter inspection results Purpose: To enter the inspection result in order to make them know to the tenants.

Overview: Landlord enters the inspection results to the system. Tenants can also pull out the inspection results from the system. Use Case Name: Store occupancy verification Actor(s): Manager Purpose: To verify rental applications entered by staff. Overview: Allows the manager to verify rental occupation, cost and profits. Use Case Name: Send eviction notice Purpose: To send an email about eviction notice. Overview: Manager checks the apartment and tenant status, and then sends an eviction notice. Use Case Name: Record pest control Actor(s): Purpose: To eliminate pest to make apartments cleaner.

Overview: Landlord will regularly (seasonal) eliminate pest, including mice, cockroaches, and bugs.