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Developing A Technology Based Solutions For Senior Citizens, Kids For Health And Safety Aangan Aashray Web Application

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Abstract - Robotic process automation (RPA) is the application of technology that allows employees in a company to configure computer software or a "robot" to capture and interpret existing applications for processing a transaction, manipulating data, triggering responses and communicating with other digital systems. Pega Platform allows you to quickly and easily build applications. Complete visual-driven application development lets you deliver apps faster, with less coding required. In our application we are using Pega platform to improve our application quality, less time consuming and low cost. There will be complete automation workflow for CRM and Doctor. CRM will be the person who will be interacting with senior citizen or children's Guardian. Direct contact with the doctors will be scheduled by the CRM. CRM will send the notification with image of medications for the senior citizen. Additionally healthier events will be conducted for Children and for Senior Citizen too.

Keywords—Customer Relationship Management(CRM), Supplementary Nutrition, Senior Citizen, Kids(0-6)years, Doctor Consultation.

Introduction

Robotic process automation (RPA) is a software technology that makes it easy to build, deploy, and manage software robots that emulate human actions interacting with digital systems and software. Just like people, software robots can do things like understand what's on a screen, complete the right keystrokes, navigate systems, identify and extract data, and perform a wide range of defined actions. Robotic process automation streamlines workflows, which makes organizations more profitable, flexible, and responsive. It also increases employee satisfaction, engagement, and productivity by removing mundane tasks from their workdays. RPA is non-invasive and can be rapidly implemented to accelerate digital transformation. And it's ideal for automating workflows that involve legacy systems that lack APIs, virtual desktop infrastructures (VDIs), or database access.

In our application we have used Pega Technology where we mainly concentrate on Senior Citizen and kids of (0-6yrs) health and safety. This will reduce infant and maternal mortality. For the health of kids and Senior Citizen there will be a direct counselling with the doctor scheduled by the Worker(CRM). In our public portal there will be a volunteer registration form through which the people who are interested can register for the volunteering work and that form will be reviewed by the Worker(CRM). Worker(CRM) approve or reject the form. If approved, the approval mail will be sent to the volunteer through mail likewise for rejection also the rejection mail will be sent to the volunteer. If Senior Citizen able to know our organization and she want to join in our organization, then she can able to give a request mail by filling the form in the public portal. After that worker will contact or visit the particular Senior Citizen and they will take care and monitor them regularly.

PROPOSED SYSTEM

Workers visits Senior Citizen and create a account for that Senior Citizen then update details in our application. Likewise for the children of age 0-6 years ,the account will be created and their data will also be updated by WORKER. Workers will visit and check the Senior Citizen or Kids health and they will update the further information. Worker will apply for the checkup. Doctor will schedule the date and time and that details will be intimated to the workers. Workers will visits the doctor with Senior Citizen or Kids. Doctor will update the health details and reports in our application. If Worker had any issue they can use helpdesk for resolving the problem. The volunteering members can register for the volunteering works. Based on the availability, worker will approve or reject the members.

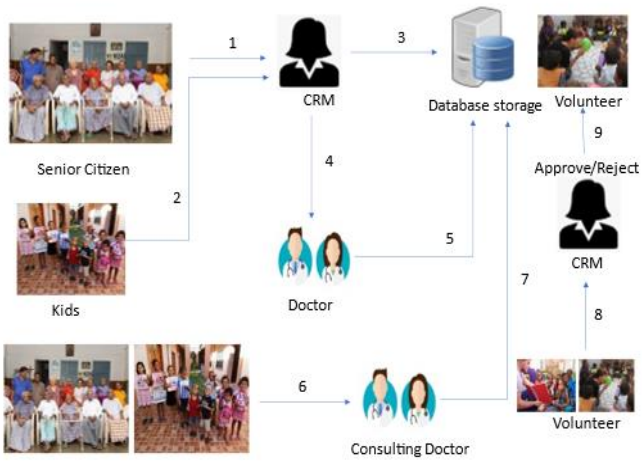

Figure 1: Flow Diagram

MODULE DESCRIPTION:

Our proposed system consist of five modules:

MODULE 1: WORKER WORKFLOW

[A] ADD NEW SENIOR CITIZEN

In Anganwadi Workflow, Add Senior Citizen Casetype is added. In Add Senior Citizen, the first stage is new Registration which has three steps such as Collecting Senior Citizen Information, Saving those

information. In Collect Senior Citizen details step, the details like Name, Age, Date of Birth, Gender, Address, Phone Number, Blood Group, height, weight ,Working Address, Spouse Details, Guardian Information, State, City, District, Pin code, etc.. will be collected and those details will be added with the save datapage in the second step. In second step, Save datapage is added in which the data transform is used to save the data in the database. In the third step, the mail step is added in which the new Senior Citizen added information will be sent to the Doctor.

[B] VIEW APPOINTMENT TIME AND SELECT SENIOR CITIZEN

In Senior Citizen Appointment case type, the worker can able to select the citizen for the doctor checkup based on their availability. In the first step we have given the fields like city and Senior Citizen Id as cascading dropdown. The Schedule datatype is created in which the city, Senior Citizen Identity and Scheduled time given by the doctor is saved in the database .In order to retrieve data for City and Appointment time, Datapage is used to fetch data from database. In repeating dynamic layout, the scheduled time is given so that it changes according to the city and Senior Citizen Id. This schedule will be selected by the Worker in order to get appointment with doctor. After selecting the schedule, the mail will be sent to the Worker that this time has been chosen by you and take the Senior Citizen for the treatment.

[C] ADD NEW CHILD

In Anganwadi Workflow, New Child Casetype is added. In New Child Casetype, the first stage is new Child Registration which has three steps such as Collecting Child Information, Saving those information and sending mail to Worker regarding the new Child added. In Collect Child details step, the details like Child Name, Child Age, Child Date of Birth, Gender, Blood Group, Head size, Weight of Child, Parent Information, Guardian Information, etc.. will be collected and those details will be added with the save datapage in the second step. In second step, Save datapage is added in which the data transform is used to save the data in the database. In the third step, the mail step is added in which the new Child added information will be sent to the Worker. The mail will also be sent to the Child that new child has been added and so please schedule an appointment for health Checkup.

[D] VIEW APPOINTMENT TIME AND SELECT CHILD

In Children Appointment case type, the Worker can able to select the Child for the doctor checkup based on their availability. In the first step we have given the fields like city and Child Id as cascading dropdown. The Schedule datatype is created in which the city, Child Identity and Scheduled time given by the doctor is saved in the database. In order to retrieve data for City and Appointment time, Datapage is used to fetch data from database. In repeating dynamic layout, the scheduled time is given so that it changes according to the city and Child Id. This schedule will be selected by the Worker in order to get appointment with doctor. After selecting the schedule, the mail will be sent to the Worker that this time has been chosen by you and take the Child for the treatment.

[E] VIEW SENIOR CITIZEN DATA

In this casetype, One stage is added in which there are three steps . In the first step Senior Citizen details like Senior Citizen Name, Senior Citizen Age, Senior Citizen Date of Birth, Gender, Senior Citizen Address, Phone Number, Blood Group, height, weight ,Senior Citizen Working Address, Spouse Details, Guardian Information, State, City, District, Pincode, etc.. are viewed and in the second step the Senior Citizen health details like the health details of the Senior Citizen like Senior Citizen Age, Blood Group and Checking whether they have any problems like Diabetes, Height, Weight, etc.. are viewed and in the third step the

report details like Senior Citizen Scan Report, Prescription, Blood Test Report and Other reports, Weight, Suggestions, Appointment time, etc.. are viewed by actors like Worker and Doctor in their respective portals. These details are given in a multistep form in which the details can be seen in the single screen handled by the single user. So that the actors can view the details easily.

[F] VIEW CHILD DATA

In this casetype, one stage is added in which there are three steps. In the first step Children details like Child Name, Child Age, Child Date of Birth, Gender, Blood Group, Head size, Weight of Child, Parent Information, Guardian Information, etc.. are viewed in the second step the report details like Child Scan Report, Child Medical Reports, Prescription , Blood Test Report and Other reports, Weight, Head Size, Suggestions, Appointment time, etc.. are viewed by actors like Worker, Worker and Doctor in their respective portals. These details are given in a multistep form in which the details can be seen in the single screen handled by the single user. So that the actors can view the details easily.

MODULE 2: DOCTOR COUNSELLING

[A] VIEW SENIOR CITIZEN DETAILS AND SCHEDULE APPOINTMENT TIME

In Doctor Counselling, Prospection Senior Citizen Casetype and the childcase Doctor Consultation casetype is added. In this casetype, two stages are defined. In the first stage, the multistep form is given which means multiple steps can be handled by single user in the single screen .So, the first step is for viewing the Senior Citizen Information, second step is for viewing the Senior Citizen health details and the 3rd step is for viewing the Reports of the Senior Citizen in order to know the health reports of the patients. After viewing these details , the process moves to second stage in which the enter appointment step is added in which the doctor will enter the view the Senior Citizen Id in the read-only mode and enter the City and Appointment date for the Senior Citizen. Those details will be saved in the database with the help of datapage in which the source given is data transform. After that the case will wait till the Doctor Consultation casetype resolve.

[B] CHILD CASE: ADDING SENIOR CITIZEN REPORTS

In the Doctor Consultation Casetype, One stage is defined, in the first step the reports of the Senior Citizen is added by the doctor. The reports added are Senior Citizen Scan Report, Prescription, Blood Test Report and Other reports, Weight, Suggestions, Appointment time, etc.. will be added by the doctor and those details will be saved in the datapage with the data transform as a source and mail will be sent to the Worker that the reports has been added for the particular Senior Citizen and Id is also mentioned.

[C] VIEW CHILD DETAILS AND SCHEDULE APPOINTMENT TIME

In Doctor Counselling, Prospection Child Casetype and the childcase Doctor Counselling casetype is added. In this casetype, two stages are defined. In the first stage, the multistep form is given which means multiple steps can be handled by single user in the single screen. So, the first step is for viewing the Children Information, second step is for viewing the Reports of the Children in order to know the health reports of the Children. After viewing these details, the process moves to second stage in which the enter appointment step is added in which the doctor will enter the view the Child Identity in the read-only mode and enter the City and Appointment date for the Child. Those details will be saved in the database with the help of datapage in which the source given is data transform. After that the case will wait till the Doctor counselling casetype resolve.

[D] CHILD CASE: ADDING CHILD REPORTS

In the Doctor Counselling Casetype, One stage is defined, in the first step the reports of the Child is added by the doctor. The reports added are Child Scan Report, Child Medical Reports, Prescription, Blood Test Report and Other reports, Weight, Head Size, Suggestions, Appointment time, etc.. will be added by the doctor and those details will be saved in the datapage with the data transform as a source and mail will be sent to the Worker that the reports has been added for the particular Child and Id of the Child is also mentioned.

MODULE 3: VOLUNTEER REGISTRATION

[A] VOLUNTEER FILL THE FORM AND APPROVE/REJECT BY WORKER

In this casetype, there are two stages. In the first stage there are two steps in which the volunteer details (Volunteer Name, Age, Date of Birth, Phone Number, Activities, etc..) are collected and in the second step the address details are collected in which the temporary and permanent address is collected . After Collecting the temporary address, the Boolean property (Is Permanent Address is same as Temporary Address) is added and if that check box is clicked , the data transform runs in which the Temporary Address is copied to Permanent Address. If unchecked, the data that is copied is removed again. After collecting those details, the flow moves to next stage in which the first step is for approval or rejection by the Worker. If Approved, the approval mail is sent to the Volunteer that there details has been approved and they can join their organization. Likewise, the rejection mail is sent to the volunteer if the form is rejected.

MODULE 4: END USER REGISTRATION

[A] SENIOR CITIZEN FILL THE FORM TO JOIN IN THIS ORGANISATION

The end user Registration is done in public portal and Senior Citizen casetype is added.

In this casetype, New Senior Citizen stage is added in which if the Senior Citizen came to know about our organization they can directly fill the form provided in the public portal and they can fill various details like Name, Age, Date of Birth, Address, Are you interested to join in our organization, Phone Number, etc.. has been collected . After collecting those details, the mail will be sent to the Worker that the new Senior Citizen is added and new details will be sent to AWW. The details section is displayed in the mail. After Worker receiving mail, they will meet the Senior Citizen and monitor and take care their health regularly.

COMMON MODULES FOR ALL ACTORS:

[A] VIEW IMAGES

In this Gallery, the State, City, District is given in cascading dropdown in which the state is given as parameter to the District and District is given as parameter to the City and if the State is selected and district will be displayed for the particular state and if the district is selected and the city available for that district will be displayed and if the city is selected, the image added for that particular city will be displayed. For Image Property alone, the repeating dynamic layout is used which is mainly for pagelist property, to view many Images. In order to get the images, the pagelist property is created in which the Images Data class is defined and refer to a datapage is given and datapage created and city is passed as parameter to get the image. In repeating dynamic layout, the property is referred. And refresh condition is given to get the Images as the city property changes.

[B] ADD IMAGES

In the Image Addition Casetype, one stage is added along with three steps. In the first step, the state, City, District and the Image property is defined. Through this casetype various images is added for particular state, City, and District. So, that added State, City, District and Images can be saved in the database with the help of datapage which has data transform as a source. After storing these data, it can be retrieved from the database using datapage in the Gallery Casetype.

[C] VIEW VIDEOS

In Study Tutorial Casetype, one stage is added along with one step defined. In that step, the video that is added is viewed. The Study Tutorial is defined for all the portals so that the actors (Worker, Doctor) can watch the videos and they can know about the organization information. The video is added in the binary file and it can be viewed in this casetype.

TECHNOLOGY

Pega is a Business Process Management Tool (BPM). It can be used to manage the business flows, and enables us to quickly build end to end applications . it can also be integrated with legacy systems. Pega has out of the box reporting and dashboards which can be used to manage the metrics. Pega platform is used to build business application and it's build on Business Process Management tool.

Actors: CRM , Doctors .

Pegasystems develops software for customer relationship management (CRM), digital process automation, and business process management

PEGA

Pega delivers innovative software that crushes business complexity. From maximizing customer lifetime value to streamlining service to boosting efficiency, Pega helps the world's leading brands solve problems fast and transform for tomorrow. Pega clients make better decisions and get work done with real-time AI and intelligent automation. And, since 1983, they built their scalable architecture and low-code platform to stay ahead of rapid change. Its solutions save people time, so our clients' employees and customers can get back to what matters most.

WORKING OF PEGA:

Pega is a thin-client, Java-constructed application designed for deployment in a web browser environment. Pega is a JEE application and is deployed in a 3-tier architecture as illustrated below. The Pega Engine consists of a single EAR or WAR deployment that serves as a thin interpretive layer for the application logic which is stored in the database.

The Pega applications are Java applications and are most commonly deployed as a classic multi-tier JEE application.

The Client Tier is all browser-based, including the design time. Being browser- based allows Pega to support our own portals for end users, embed our user interface into other applications such as SharePoint, and Mash-ups. The End User interface is browser-independent and supports IE, Firefox, Safari, Chrome as well as MS Edge. Having a unified rules engine allows Pega to dynamically adjust the user interface to account for channel and/or client device. This unique ability is well suited to supporting mobile clients such as phones and tablets not only through web-kit enabled browsers but

natively as well, allowing your Pega applications to take advantage of mobile device capabilities like the camera andgeolocation.

At the application tier, Pega supports deployment into WebSphere, Oracle, JBoss, and Tomcat. The Pega engine is deployed either as an EAR or a WAR file. The functionality provided by Pega is the same regardless of how the engine is deployed; however, when deployed as an EAR, Pega can take advantage of the EJB container as well as JEE transaction API and JEE security services. Pega engines can be scaled vertically or horizontally and will typically be deployed in conjunction with a load balancer and other infrastructure resources such as a proxy and/or HTTP server. Note that load balancers must support session affinity, a "sticky session", for users who are leveraging the Pega UI; service clients can invoke Pega using either stateless or stateful sessions.

You can optimize performance and provide higher scalability and stability in a cluster through node classification, a configuration that allows specific nodes tobe assigned a specific purpose.

At the data tier, Pega leverages a relational, application database. Oracle, DB2/UDB, SQL Server, PostgreSQL, and AzureSQL are all supported. The Pega database uses a split schema design. The Model Schema holds all the

process models, business rules, user screens, case definitions, and service levels that define the way your application runs. When users save a change to a process flow, what they're really saving is a record to the Model schema. The Work schema stores run-time information such as processes states, case data, assignments and audit history. The split schema design is used to support solutions that need to be highly available by allowing upgrades and maintenance of the Pega platform to be performed with minimal to zero downtime.

Pega persists data to Pega database using a hybrid approach that involves both table column data as well as binary streams (BLOBS). This approach allows the application data model to be changed without requiring updates to the repository schemas, remember Build for Change is our goal with this architecture. It also provides for improved performance as it is not necessary to join together multiple tables to load a single case into working memory. As data is being persisted, Pega looks to see if any of the data has a matching column and if so, will also write the data there as well. This allows the data to be exposed to third-party reporting tools or to be used for optimizing queries. Pega can re-persist previously saved objects so that the exposed data can be written into the new column.

Pega supports network-level and/or HTTP-load balancers to route requests between multiple servers. The solution automatically persists the state of a work object into a central or a cluster database. If server A is unavailable on the next invocation of the server, a built-in load balancer will know server A is unavailable and automatically switch to server B, at which point the work would continue from where it left off. In the event of a system interruption or failure, the Pega solution will store locally any in-process work through business rules workflow, which allows the user to resume processing from the stopping point. Pega leverages standard app server technologies that are multi-threaded and capable of supporting multiple sessions. At the application level, Pega offers multiple options for workload balancing algorithms available for individuals and workgroups including: workload leveling, skills-based, and round-robin routing as well as hybrids of these.

Pega is configured for deployment into high availability environments. High availability deployments do require that the customer has an enterprise-class load balancer that can detect node failures and reroute requests to an available node in a pool. It also requires configuration of shared storage between nodes for persisting user session data. This allows the ability to quiesce a node to apply an operating system patch or perform some other maintenance on the server. Pega provides automated recovery support when the user's browser crashes or a node in the cluster crashes.

The Pega platform provides out-of-the-box Business Activity Monitoring and Reporting capabilities; however, sometimes it is desirable to copy the data into a data warehouse or an analytics system for further analysis. Pega offers the Business Intelligence Exchange (BIX) product which allows customers to export Pega binary streams into a format suitable for importing.

CONCLUSION:

Mostly the senior citizens are affected by the following problems like Loneliness due to the death of a spouse or friends. Feeling of social isolation as children become busy with their own lives or move to a different city or country. Dependence on care givers to perform activities of daily living. Stress due to financial issues from loss of regular income. Struggling to cope with and difficulty accepting physical changes due to aging. Advancing age severely limits mobility and the persuasion of hobbies. Feeling of dissatisfaction due to retirement and lack of routine activities. Depression due to ongoing or chronic medical problems and medication. In order to overcome these problems and help the senior citizens and kids lead the happy life we build this application to provide them proper nutritious food, monitoring their health continuously to provide proper treatment whenever needed. Direct contact with doctor in order to get proper treatment .

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