Human Resource Management System using Spring Framework in Java

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Abstract : Human Resource Management was once thought of a form of the executive jobs. However currently it's evolved into a strategic function to boost working atmosphere, and to arrange the necessity of human resources to strike a balance between the organization and employers so as to boost the productivity in organization and meet goals of organization. It has bit by bit become one among the foremost vital functions of a company in today's extremely competitive world. HR used to perform certain transaction pay rolls but now due to globalization HR now focuses on Succession Planning, industry and labour relationships. It is very tedious job for the HRM to manage all the details about every employee in the organization like labours, managers and further details of their loans, record 0of their leaves from the office etc. without the help of Java, which is only accomplished by making a balance between the design/process of Database and design/process of software. In this paper we are trying to balance between Database and spring software framework.. Spring is famous open source Java application Framework. It combines industry normal frameworks like Hibernate, Struts etc. and combines in one bundle.

Keywords : Java, J2ee, Framework, spring, HRM, HR.

1. INTRODUCTION

Human Resource Management is the method or tool to study the adjustment of employees and their relationship in organization, matching the work and the employee expectation to meet the need of higher productivity in the organization. In India there is much more challenges faced by the HR. As there is literacy rate of 74.04% and India rank 136 in 186 countries in Human Development Index according to UNDP 2012-13[1]. There are chances of increase in labour force by 32%. Although there is need to have good development in the areas of education, health and skill development and rapid economy growth must also accompany good livelihood opportunities to meet the aspirations of youth.

Recruitment : It is a function that requires perspective, expertise and ability to find and match the best candidate available for the organization. HR now faces new challenges in the recruitment process and they need to come up with novel strategies to select the well-deserved candidate for the growth of the organization[2]. The Major Challenges are**:**

- **Adaptability to Globalization :** The HR is anticipated to stay in tune with changes within the World and manage the time needed for the complete process of recruitment to be executed[3].

- **Process Analysis :** HR must return up with versatile, adjustive and responsive recruitment process for the immediate needs in cost effective manner.

- **Strategic Prioritization :** HR must review staffing needs and prioritizing the tasks to satisfy the changes within the market

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Globalization of Business : Multinational firms have established operations for producing services in India. Competitive marketplace has driven significant changes in labour markets, and has remodeled Human Resource Management [4]. As corporations are evolving from domestic to international and to multinational and to world, at every section there's modification occurring in approach of HRM towards competitive structure, analysis and development, selling ways for the merchandise etc.

Economic and Technology changes : With the advent of time there is change in the structure of technology sector in the organization. There is need that IT and Technologies is to be accepted by all levels in the organization[4].

Conflict Management : HR managers are needed to tactfully handle the conflicts within employers and between employer and employee.

Developing leadership : Leadership is based on knowledge at the organizational level rather than traits and qualities.

Spring is a lightweight framework [5]. It can be considered as a structure of systems in light of the fact that it gives backing to different structures, for example, Struts, Hibernate, Tapestry, EJB, JSF and so forth [6]. The system, in more extensive sense, can be characterized as a structure where we discover arrangement of the different specialized issues [7].

Features of Spring Framework

- **Light weight :** Spring is lightweight as far as size and overhead. The whole spring system can be conveyed in a Jar file that weighs in at a little more than 1 MB [5].

- **Inverse of Control :** The fundamental idea of the Inversion of Control pattern is that you do not create your objects but describe how they should be created. You don't specifically interface your components and services together in code yet depict which services are required by which component in a configuration file. An IOC holder) is then in charge of looking it all [8].

- **Aspect-Oriented :** Spring supports the features of aspect oriented programming approach that enables cohesive development [9].

- **Container :** Spring is a compartment in light of the fact that it deals with the life cycle and configuration of application objects.

- **Framework :** Spring accompanies MVC web application framework, based on core spring functionality. This structure is profoundly configurable by means of methodology interfaces, and obliges various perspective innovations like JSP, Speed, and Tiles.

  Spring is powerful framework for building enterprise application [10]. Simple web server such as Tomcat can also be used during integration of spring with other frameworks. The spring framework can be easily integrated with any ORM tool such as Hibernate with the help of XML mapping and also with iBATIS [10].

2. MAJOR CHALLENGES FOR THE HR

- **Adaptability to Globalization :** It is expected from the HR Professionals to change the organization process with the change in time, they are required to adapt with the globalization

- **Lack of Motivation :** Recruitment is an important task performed by the HRM and good recruit's results in progress of organization. HRs are not supported or thanked for getting right recruit's in the company. No motivation or support is being provided to them by the organization.

- **Process Analysis :** -As Recruitment is an important job of HRM so the recruitment process needs to be analyzed properly in order to meet the organization demands in short time and to manage the cost of entire process [11].

III. TRADITIONAL VS MODERN METHOD IN HRM

Table 1. Comparison between Traditional and Modern Approach of HRM

Traditional Approach	*Modern Approach*
1. It is personnel or staff management	1. It is based on the managing employee-employer relationships in the enterprise. It is actual Human Resource Management.
2. It is predominantly record keeping function that maintains the terms and condition of employment [12].	2. It integrates the standard approach of personnel management with the company goals and strategies [13].
3. It has narrow scope	3. It has broader scope
4. It includes functions like Recruitment, Job analysis and performance appraisal etc	4. It includes all the activities of Traditional HRM plus Leadership, Motivation Developing Organizational Culture etc. [14].
5. It gives more importance to norms and established practices.	5. It gives more importance to mission and values. It goes by the spirit of contract
6. It has no involvement in core organizational activities and functions [12].	6. It remains integrated with company strategy and takes a proactive approach to align the work force toward accomplishment of company goals.
7. It is independent staff function that has little involvement in core organization process.	7. It carries out much of the human resourceManagement task [15].
8. It tries to reunite the goals of employees with management through institutional means.	8. It offers more importance to customer-focused developmental activities and facilitating individual workers rather negotiating with trade unions [16].

4. METHODOLOGY

In nearly every huge organization, managing individuals and resources are a troublesome task. For organizations with quite a whole lot or thousands of staff, managing every employee's details, loans and advances, attendance, multiple shifts and overtime etc., is not possible without an economical system. It is therefore felt that a spring framework based solution be developed, that can assist organizations in meeting their HR requirements.

This spring framework based project brings forth current methods and techniques used in the Requirement Specification of information systems. The highlight here has been the use of various models to define: system scope, domain analysis, functional behaviour, system timing, and object definition & design.

The problem in building information systems is dealing with the balance between database design and process design. Designing / building the database and designing / building the spring based software are often treated as separate processes. In this spring framework based project we explore how these two sides of the coin can be coordinated. Also emphasis has been given to managing software project. A strict vigilance on time schedules and estimations is followed to mitigate time overrun for development and deployment. To accomplish the above stated objectives, I have attempted to create a reasonably sized application consisting of a database and processes. The database will be designed using an 'Entity-Relationship' approach. The application will be built using the Unified Modeling Language (UML).

Identifying Entities and Attributes

We transform the class diagram to ER-Diagram by identifying the persistent and non-persistent data being maintained by the classes.
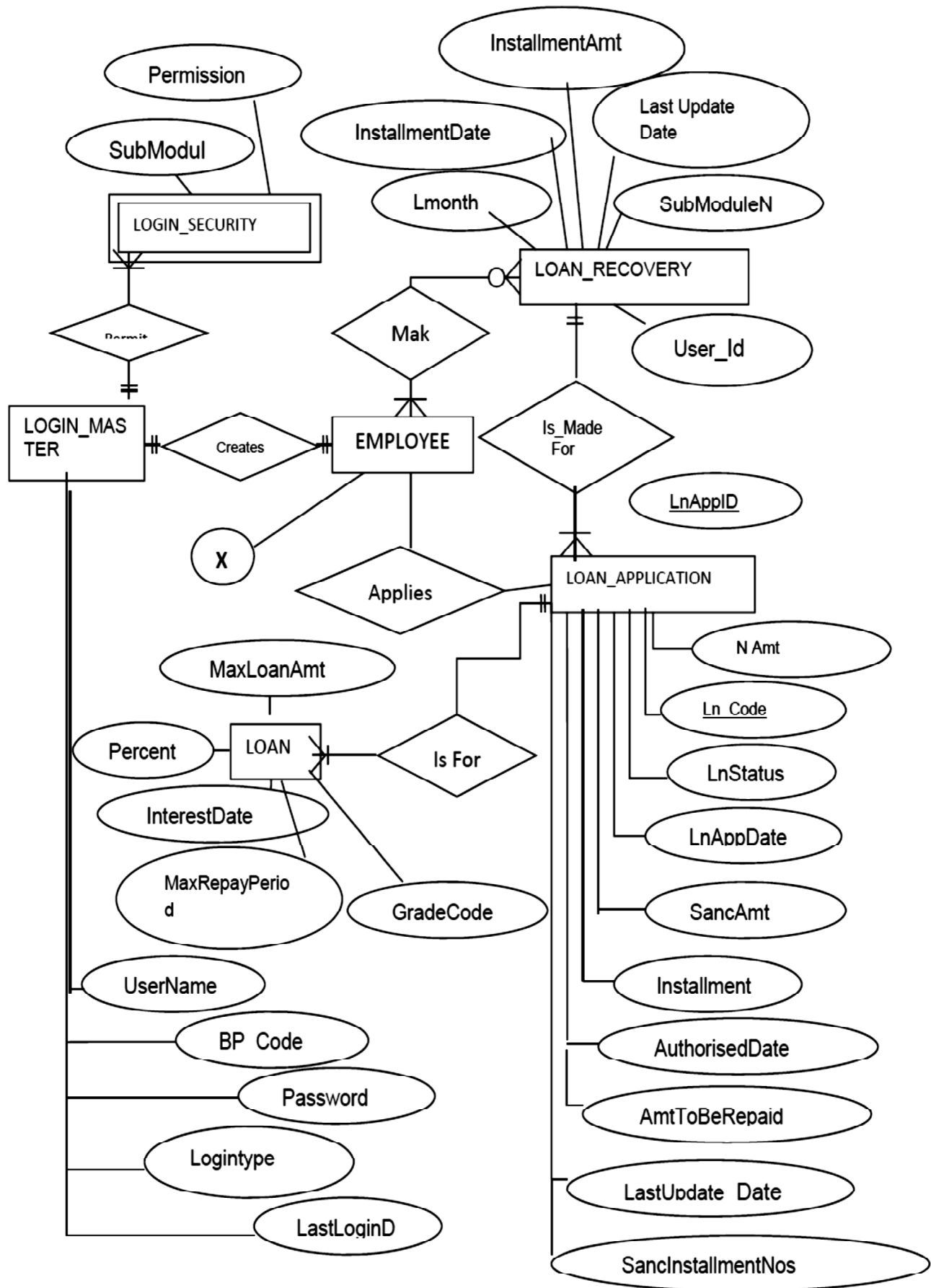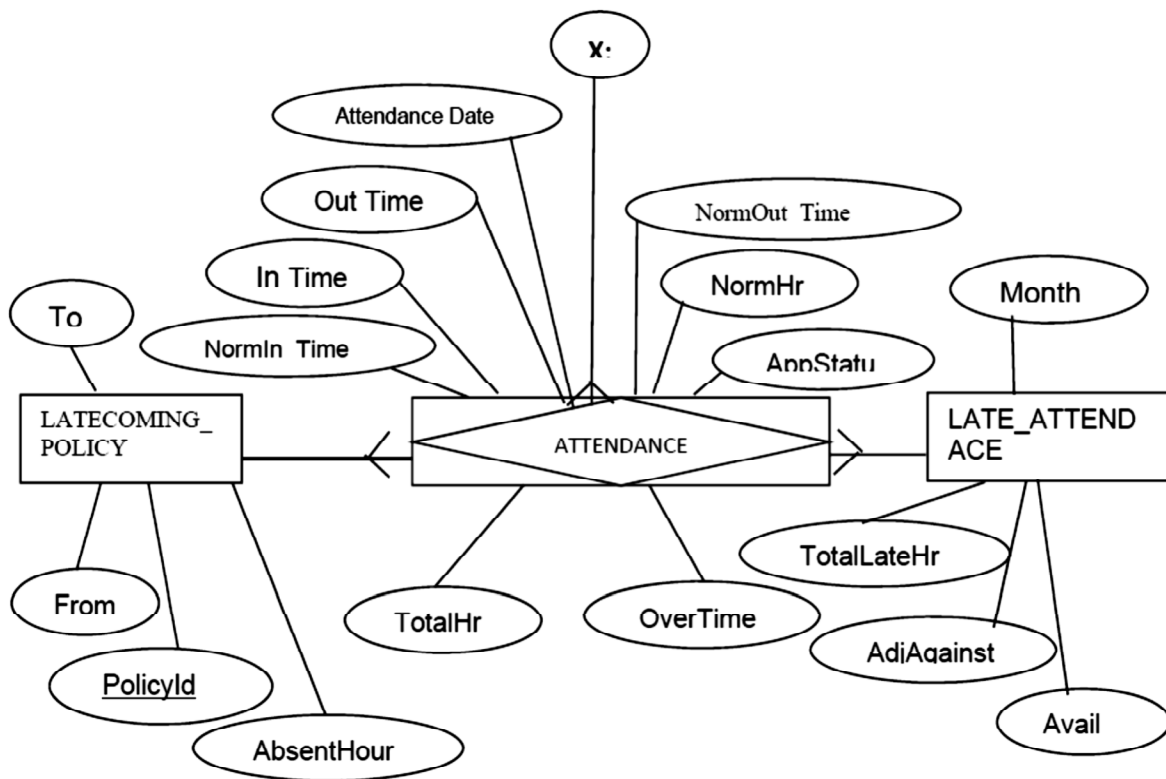
Fig. 1. Flow chart of employees for loan.

Fig. 2. Flow chart of Employees for Attendance
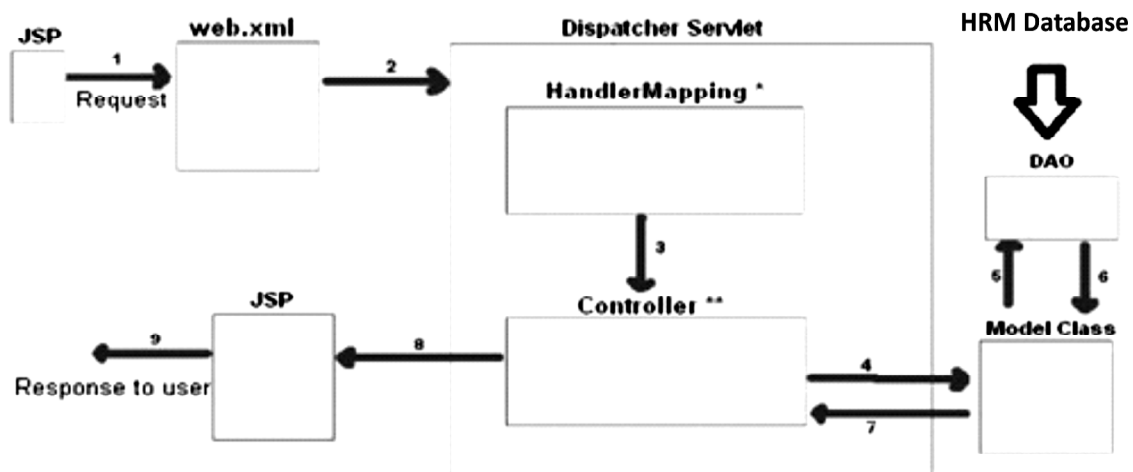
Spring Architecture with HRM

Fig. 3. Spring Framework with HRM

1. HR sends request to server by submitting form. Request is at first given to WEB.XML.
2. WEB.XML routes request to Dispatcher Servlet by taking a gander at <servlet-mapping>.
3. Inside DispatcherServlet, First "HandlerMapping" gave over request to suitable HR 'Controller'.
4. HR Controller maps request to appropriate Model class. All business logic is done inside Model class.
5. If database operation is required then Model class will route request to suitable DAO. All database operations ought to be completed in DAO is worked with HRM.
6. If required then connect traits into request/session/application scope and return back to HR.

7. If required then attach attributes into request/session/application scope and return back to HR.

8. HR essentially returns it to any View (JSP/HTML and so on).

9. JSP/Html is viewed back to user end.

V. RESULT AND DISCUSSION

Fig. 4. Login page of HRM using spring.

This is Human Resource Tracking System that requires Login ID and Password. Every Employee has its own login id or password that allows the employee to keep a record of his leave and salary and organization also can keep record of every employee. At Every level there is a certain restriction to either every employee or certain employees that can be only seen by the head of the organization using spring framework.
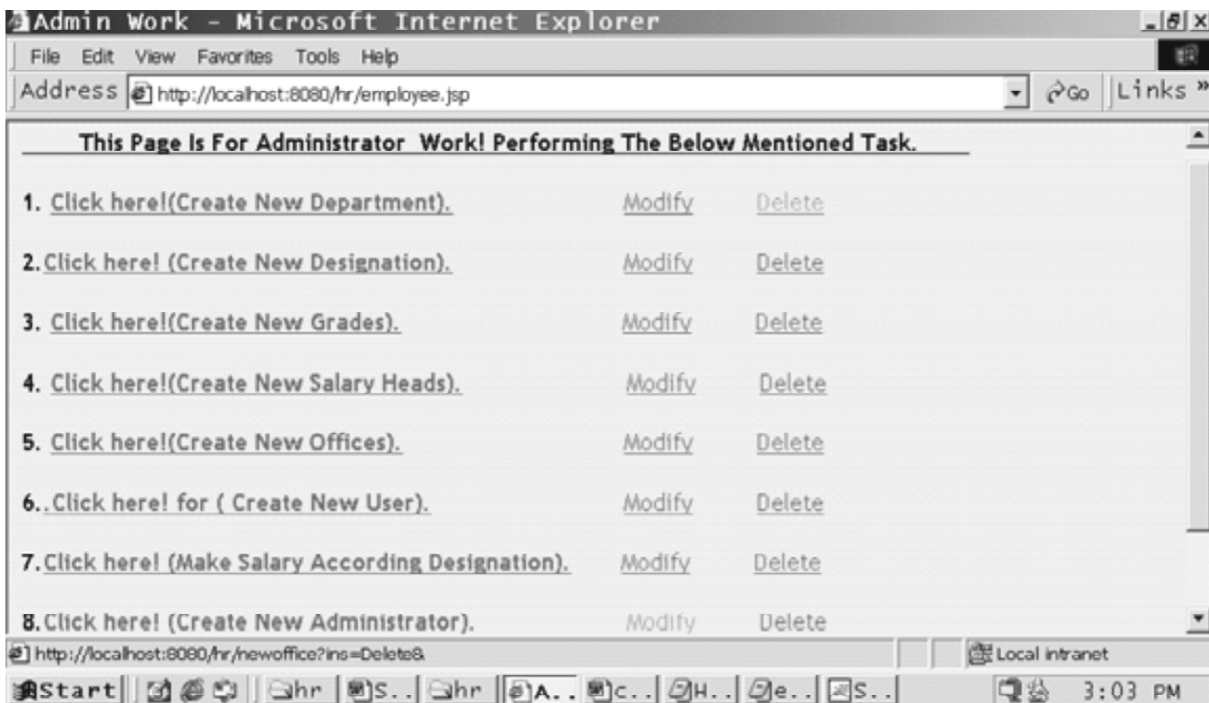

Fig. 5. Employee details using HRM.

After Login to the Human Resource Tracking System, there comes a new page having options available as like to create a new user for new employee or checking salary increment for selected employees and many more by the help of spring framework.
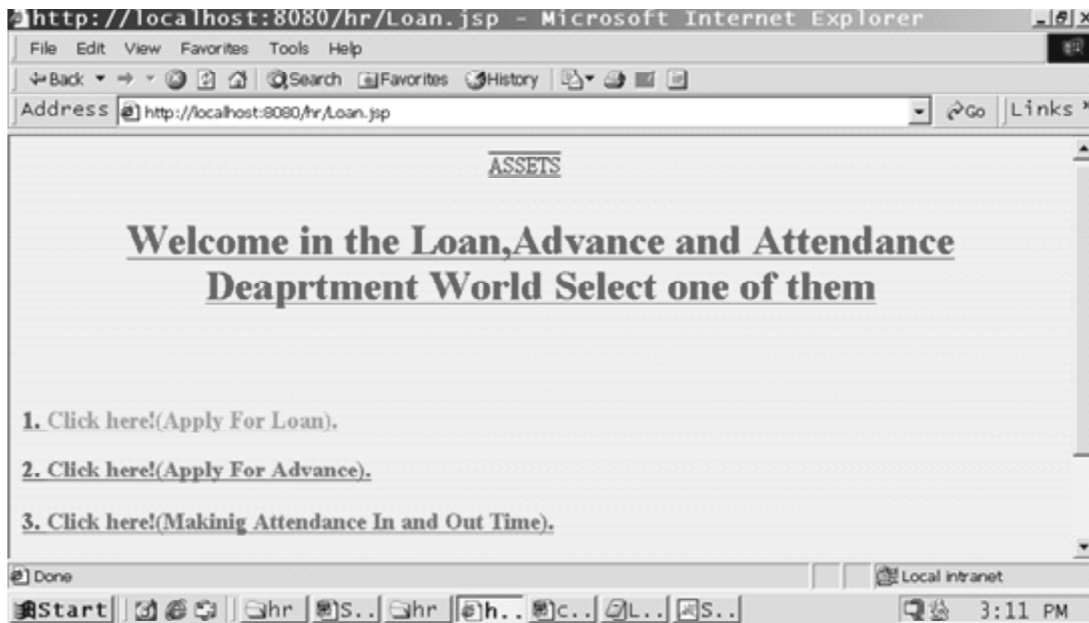

Fig. 6. Loan console of HRM.

The page opened above is giving HR many options to select depending on the requirement whether He or She wanted to check the attendance or check the record of loan and advance taken by the employee from the organization. This has become possible through Spring Framework.
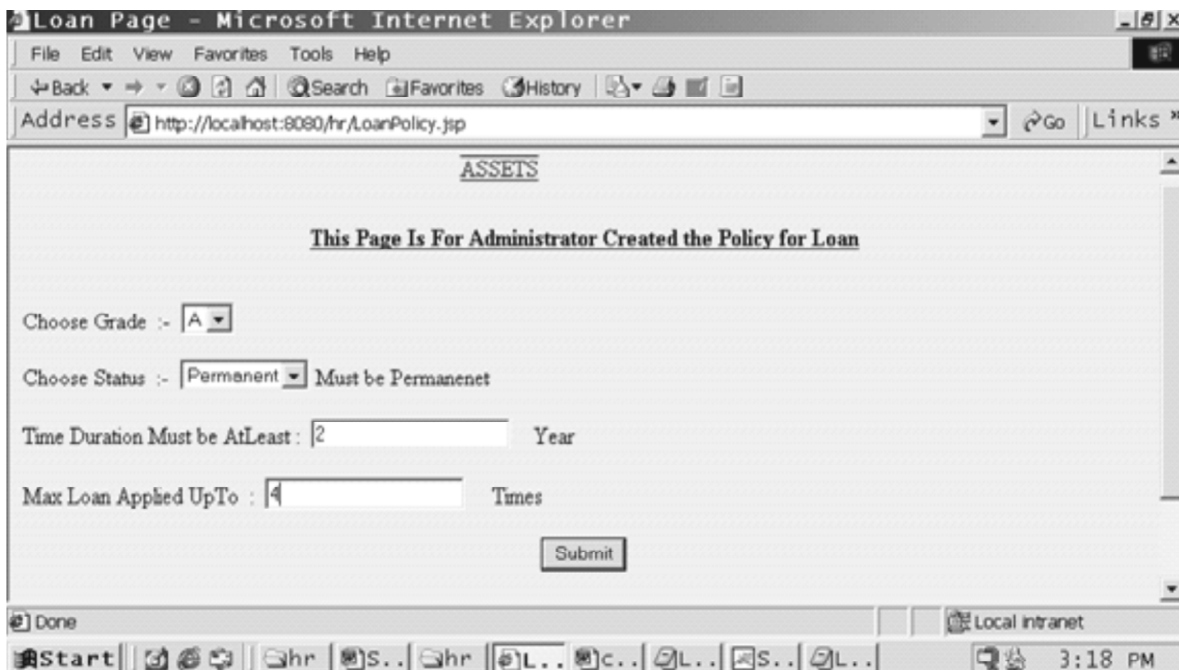

Fig. 7. Loan policy page of HRM.

In the page above HR is allowed to create a policy for the Loan to the employees. As seen the employees can be set on grade and status depending on which only certain amount of money can be sanctioned to employees of that grade or status as loan by spring framework. These are just some of the web pages of Human Resource Tracking System.

6. CONCLUSION AND FUTURE SCOPE

The HR function of 21st century India has changed from being 'behind-the scenes' support as appendage to become the critical differentiator in business.HR with Spring framework in which Spring framework enables resource and data aggregation on java. Java helps in improvement in execution efficiency by distributing application execution at different levels. Due to reducing costs of devices and networksdata from real world is getting collected in data centres. A system that implements big data processing on spring framework is a combination of components like servers for judgement, accumulation and analysis to solve real life problems like traffic management and human resource management.

The package may integrate payroll system to include features like PF & ESI, TDS, and Leave Rules. As the project uses Java/J2EE technology which supports OOPS and is platform independent thus any new modules can easily be implemented in it. There is an ongoing research to design and implement Big Data of HR with spring framework In the future there is need to implement HR with spring framework integration to reduce cost on infrastructure in java or J2EE based applications.

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