

The government wants to develop an information system that manages pension system and supplies the accurate situation of the pension funds and retributions. The system can be accessed by retirement agencies, retirees, employees, and government agents. Each actor role has its own access rights .

While a person is employed, he/she pays monthly a percent of his/her income to save for retirement goals in the pension fund he/she subscribed. The employee can contribute for a company income pension and can also opt for additional pensions from private funds. The percent to save is established according to the employee's settling but not under a minimal threshold. The pension contributions are centralized at regional level: information on all contributions of employees are collected/received from all the companies and stored in the regional funds repositories. A person may move from a company to another, have different salaries, have more jobs and also move from a region to another or move his/her contributions from a fund to an other fund.

Generally, the amount of a company income pension depends on the age of retirement, how many years the retiree contributed to the fund and is computed for each job the employee had, taking into consideration the employee gender, if he/she is married or not, his/her contribution to the pension fund, how many years did he/she spend in that job, the domain of the job, whether it was part time or full time, the level of education needed for the job. It also depends in what region the retiree was employed for a certain job, as different regions may have different ways to compute the pension.

The monthly amount of a private fund pension is depends of contribution amount and the rate of inflation for each year of contribution.

The system should also provide retirement pension planners that generate and deliver real-time qualified retirement plans for retirement agencies and individuals.

When a person retires the system should provider a pension calculator that computes the amount of money he/she will receive monthly from each pension fund he/she subscribed.

For the government agents the system must supply the current state of pension funds at national level by centralizing all this disparate data from all the regions and providing a unified and complete view.

For an retiree the system should present the monthly pension and justify it showing how it was computed.

The system must be available both online (via browser) and from special information kiosks available in public buildings.

Requirements:

Develop three software architectures for the system, using the following architectural design styles and patterns : peer-to-peer, publish-subscribe, message-queing, rule-based system, active repository. Document the usage of each pattern referring to the motivation in your concrete case and identifying the participants in the architecture.