

the planet is growing rapidly. The dynamic increase in the number of inhabitants on the planet creates new social and environmental problems. After all, each person for a normal existence requires several different natural resources. It must be said that the population growth is observed mainly due to underdeveloped developing countries. The bulk of the population in countries with high demographic growth lives either very poorly or is starving. If the standard of living in the countries where there is a high population growth was high, then our planet would simply not stand. Nowadays governments have to do something about it before it gets out of control. Do you know that the USA itself consumes 50 per cent of all electricity produced on the Earth? The population of the USA is just around 285 millions people. It is an interesting fact. However, the idea that the majority of the inhabitants of the Earth will live constantly in poverty is mistaken. An example of the dynamic economic development of countries such as China, India and Mexico and a number of other populous states, refutes this view. Consequently, in such countries there is one way out of the situation – it is a constraint on fertility and an increase in the quality of life of the population. But birth constraints have some barriers, namely: reactionary social relations, as well as the great role of religion, which encourages large numbers. However, for the ruling circles of underdeveloped countries, their own or tribal interests are higher than the state, as they use the ignorance of the masses for their own mercenary purposes. Environmental problems, overpopulation and economic backwardness – all this is directly linked to the potential threat of food shortages in the future. Today, in many countries, due to the high population growth rate at an insufficient rate of agricultural development, mineral fertilizers and pesticides that exacerbate the ecological situation, increase the concentration of harmful substances for human beings in food products are used to increase its productivity. In addition, with the development of cities, a large number of fertile lands are occupied, and there is a shortage of quality drinking water. In order to overcome the problems of overpopulation, first of all, it is necessary to hold a rigid demographic policy. An example of such a policy can serve the People's Republic of China. One of the top priorities of the leadership of this country with the highest population is the suspension of fertility. If initially to reduce the population growth mainly administrative measures (up to sterilization) were used, then in the future purely propaganda and economic methods will be used. Such a policy has allowed reducing the annual population growth from 28% (1968) to 10% (90th years), thus, this figure has fallen below the world average. Similar policies are being conducted in India, Bangladesh, Pakistan, Sri Lanka, Indonesia and other countries, however, the demographic policy pursued in these countries is less successful.

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THE UNIFIED MODELLING LANGUAGE: MAIN FEATURES OF MODELLING

The Unified Modelling Language (UML) is a standard visual modeling language designed to visualize, specify, modify, develop and document the artifacts of an object-oriented software system while developing. The notation has appeared from the work of

Grady Booch, James Rumbaugh, Ivar Jacobson, and the Rational Software Corporation to be used for object-oriented design, but it has since been extended and improved to present a multitude of various software engineering projects.

UML is usually applied to diverse application areas including internet, banking, as well as aerospace, finance and healthcare. Besides, it may be also used with all main object and component software development techniques and for different implementation platforms like.NET, J2EE. It should be noted that UML is not considered to be a development method by itself, however, it was designed to be compatible with the leading and significant object-oriented software development methods.

In addition, UML is supposed to be a notation that resulted from the unification of OMT from

1. Object Modeling Technique OMT [James Rumbaugh 1991] – was convenient for analysis operations and data-intensive information systems.

2. Booch [Grady Booch 1994] – was suitable for design and implementation. Grady Booch had worked intensively with the Ada language, and played an essential role in the development of Object Oriented methods for the language. Regardless the fact that the Booch method was advanced and strong, the notation was less well received (taking into account that lots of cloud shapes dominated his models – not very tidy)

3. OOSE (Object-Oriented Software Engineering [Ivar Jacobson 1992]) – presented a model known as Use Cases. Use Cases is believed to be a powerful method for understanding and analyzing the behaviour of the whole system (a field where OO has conventionally been weak).

Three significant types of UML modelling are the following:

1. Structural modeling depicts the static features of a system. They usually contain: objects diagrams, classes diagrams, package diagrams, deployment diagrams, component diagrams and composite structure diagrams.

2. Behavior modelling as a rule demonstrates the dynamic behavior of the objects in a system, which can be shown as a sequece of changes to the system over time; three types of behavior modelling can be differentiated: among them are interaction diagrams, activity diagrams, as well as use case diagrams.

3. Architectural modelling: presents the entire framework of the system. It includes both behavioral and structural elements of the system. Architectural model can be identified as the blueprint of the total system. In addition, package diagram comes under architectural modelling.

It's obvious that models are thought to be abstract representations of a system. A model uses UML or other notation in order to describe a system at different levels of abstraction. Moreover, models usually include one or more diagrams presenting various aspects of a model or a subset of the model's components in a graphical fashion.

In this way, a diagram represents a particular aspect or part of a model. Besides, diagrams can exist either outside a model or within a model. After deleting a diagram from a model, the elements remain part of the model. Consequently, models can also contain profiles which can be predefined or customized to a particular system or application.

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