Software Engineering in Information Society Development and Human Evolution

Mircea-Florin Vaida, TUC-N

ETTI- COM Department

Mircea.Vaida@com.utcluj.ro

Content

- -Information Society and Globalization
- -Web-Base Education, Spiritual Concepts and Resonance
- -Unified Human Perception Concept
- -Spiritual Concepts as Possible Technical Solutions
- -Education - Virtual education
- -The Human Language and Object Oriented Concepts
- -Life and Programming Computers
- -Conclusions

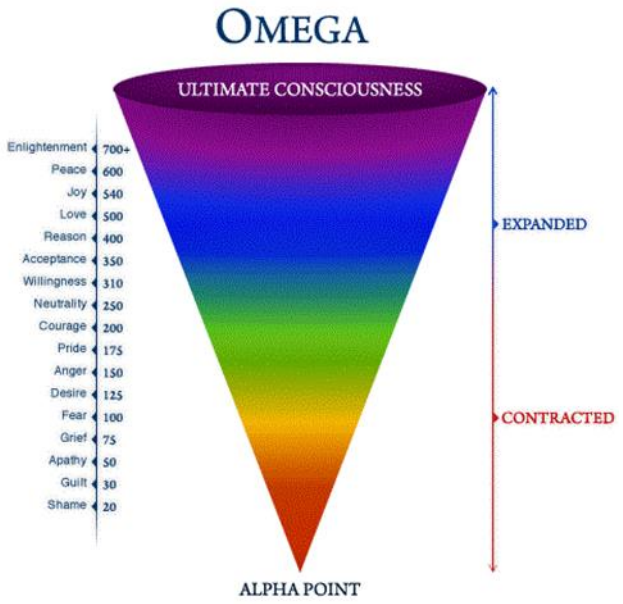
Information Society (IS), Globalization

- We may consider that IS can be represented considering the *human genetic code*, on more levels:
- 1.-structural level, representing the main material or physical elements of the society (the human *body*)
- 2.-compound level, representing the complex infrastructure of the society and the links among the elements considering the cognition elements (the human *mind*)
- 3.-these levels are connected by energy level- the human *spoken*

- 4.-consciousness level, that is an evolution of the second level, mind as low consciousnes, and behind a "chaos" we have a universal order with adjustable and vibration sequences.
- The enlightenment, ultimate consciousness - awareness, Selfish– *Is-ness*, is beyond the time and space, may be named God, and in this case, we don't need security or other restrictions.
- -The initial 3 levels are represented especially by micro-electronics, computer science, communication with all technological research activity that is manifested in this period.
- -The last level is specified by spirituality.
- -We may consider the final level, that could be the potentiality in the final evolution.

17 levels of consciousness and emotional scale (Sir David R. Hawkins, Abraham-Hicks)

	Level	Scale (Log of)	Emotion	Process	Life-View
POWER	Enlightenment	700-1,000	Ineffable	Pure Consciousness	Is
	Peace	600	Bliss	Illumination	Perfect
	Joy	540	Serenity	Transfiguration	Complete
	Love	500	Reverence	Revelation	Benign
	Reason	400	Understanding	Abstraction	Meaningful
	Acceptance	350	Forgiveness	Transcendence	Harmonious
	Willingness	310	Optimism	Intention	Hopeful
	Neutrality	250	Trust	Release	Satisfactory
	Courage	200	Affirmation	Empowerment	Feasible
FORCE	Pride	175	Dignity (Scorn)	Inflation	Demanding
	Anger	150	Hate	Aggression	Antagonistic
	Desire	125	Craving	Enslavement	Disappointing
	Fear	100	Anxiety	Withdrawal	Frightening
	Grief	75	Regret	Despondency	Tragic
	Apathy	50	Despire	Abdication	Hopeless
	Guilt	30	Blame	Destruction	Condemnation (Evil)
	Shame	20	Humiliation	Elimination	Miserable



Web-Base Education, Spiritual Concepts and Resonance

- -WBE is able to "satisfy" the technical information process but in order to understand in a deeper mode the human society evolution we must also introduce the "contented" point of view based on the human personality (Static and dynamic states)
- -We must consider in the evolution the consciousness as balance between the mind (as a synthesis of low-level layers- force) and the soul (as a synthesis of high-level layers- power) specific to the education
- - Deep spirituality involves no-levels to be in a time-less, space-less, bound-lessness state.

Resonance

- -Using the (profound) resonance concept, or resonance, we are able to eliminate some deviations and mistakes in the education process.
- -The resonance will realize a selective interconnection among systems with profound affinities that will be able to communicate.

- In education, resonance may be represented by a teacher-student interconnection. This interconnection is a reverse one that will be able to offer a cyclic process with a given frequency.
- In universe the gold number (1.618034) is at the base of the most cyclic phenomena.
- A proportion will be used, that will represent a harmony manifestation.

Computers Evolution

- -The computers evolution involves many simple and efficient ideas that belong to the common life but only some "scientists" are able to "see" and impose these ideas.
- -To "look at" is limited in time and usually is associated with fright.
- -To "see" is outside time and usually no scope is associated, an open state being considered.

Technologies in Computers Structure

- The main technologies involved in computers development are:
- - Harvard architecture, developed at the Harvard University, with data in RAM (Random Access Memory), instructions in ROM (Read Only Memory), PC (Program Counter), Acc (Accumulator register), etc.

- - von Neumann architecture, developed at the Princeton University, with an ALU (Arithmetic Logic Unit), CCU (Control and Command Unit), Memory, I/O (Input/Output) devices, etc.
- - Kilburn not as architecture as an evolution of the Harvard/Neumann architectures, developed as the Manchester Mark1 computer, the addresses are processed during the instruction cycle, the cache memory is used for fast processing, etc.

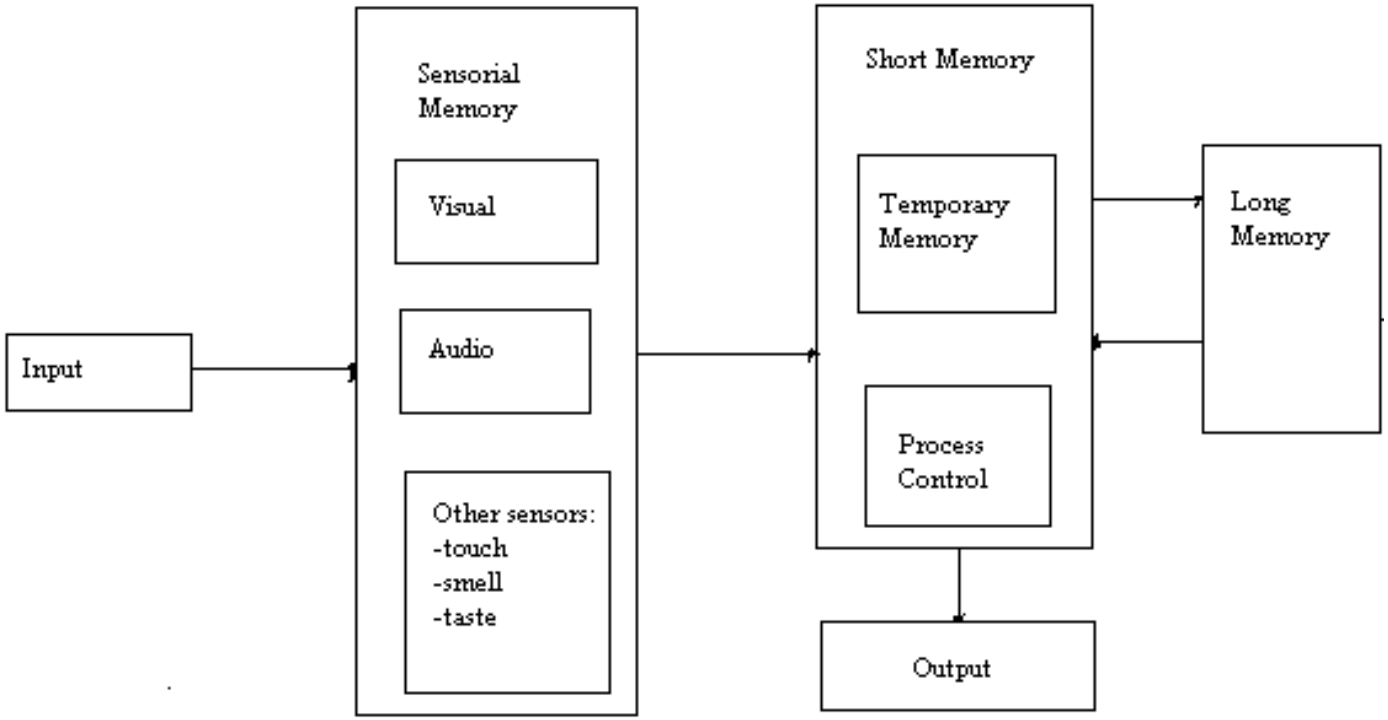
Unified Human Perception Concept

- -We do not know precisely in this moment how works the human perception and how human process information to make so fast and accurate decisions
- -A lot of sophisticated methods are developed in this domain but it seems that human perception is more simpler and efficient and is realized at each level, from a cell to the whole body.
- *Einstein* says: "Make things as simple as possible, but not simpler…"

Human life and Computers Architecture Evolution

- An important element considering the computers architecture evolution is that the *human life system* is transposed in the computers architectures.
- As an example, the ordinary five human senses, the multi-sensorial human perception, can be integrated in such an architecture as shown in next Figure.

Multi-sensorial human perception correspondence



Discrete sequential environment perception

- -Considering a "multi-sensorial perception" based on different signals processing, some philosophical papers show that *human perception could be considered as a discrete sequential environment perception* with simultaneous, basic five (penta), different levels of processing.
- -There are some other opinions, but on consider that the visual perception which represents the more important sense for more than 90% of the common humans, do not always represent the preponderant element in this complex process of perception

- -At any level, we may consider some aspects concerning *energy, frequency vibration*, the *form manifestation*, etc.
- -We may have feedbacks and influences among all these levels.
- -Referring to *intelligent applications*, we may consider multi-sensorial systems with different transducers that can process all the information and assist the user in the analyzed process, as in the signal pattern recognition domain, or other domains.
- -Different types of information must be used to obtain a consistent decision.

- -The signal processing (uni-dimensional, bi-dimensional or multi-dimensional) seems to represent the basic technical research direction for the new information society.
- -We may consider a *top-down* or a *bottom-up* strategy. In each strategy and at each level of perception it is possible to identify elements of image pattern recognition, if we consider 2D or 3D signals.

Top-down strategy (creation process)

- **A creation process can represent the top-down strategy. It is possible to use a hierarchic strategy, on 5 levels that can be refined on more levels, usually 36. The basic five levels can be summarized as follows:**

- **-First level**, a potential state that the human analyze firstly. The *form perception* could be a circle or more general an *ovoid* in space. The *frequency perception* consider in this case the *sounds* that could be *heard by the ears*. The *color* perception could be *black or indigo*. Form factors can be considered for image analysis.

- -**Second level**, a movement level analyzed by *touch*. The *mathematical Morphology* based on a *hexagon grid* is a very good methodology that could be used at this level considering image processing. The *color* that influence the human perception at this level could be *blue (dark green)*.
- Touch sense is specific to this level.

- -**Third level** is characterized by *heat* and *eye perception*. In this case *normal and infrared cameras* could be used to acquire images. An *expansion* process is characterized at this level. The *color* that could be considered at this level is *red*. The specific *form* is the *triangle* with upper direction.
- Sight sense is specific to this level.

- -**Fourth level**, the movement is limited at a well defined space considering a *defined radius*. The *fluidity* is specific for this level and the *color* perception could be *silvery white*. The elongation feature considering an ellipses approximation of image particles could be considered.
- Taste sense is specific to this level.

- **-Fifth level**, were the *cohesion* is specifically. The *square* is the form that may be considered in the process of image processing. The *color* perception is *clayey yellow*.
- The *earth frequency* may be also considered.
- Smell sense is specific to this level.

Bottom-up (awareness - consciousness process)

- The bottom-up strategy is considered an awareness process.
- In this case a *fractal strategy* can be used.
- Simple operation considering a *multi-level perception* with a very efficient storage, communication and access of information, maybe using a *holographic model* could solve this very difficult problem of intelligent perception in dedicated systems.

Coding Technologies

- -The most important problems that must be solved are coding, recording, and accessing digital holograms including also pattern recognition techniques in the image processing case.
- -The holographic coding technique may be based on *random equidistant values*.
- -Coding and accessing to the coded document attracted a lot of scientists from all times. Usually, mathematicians and computer science specialists try to develop safety techniques to code or to decode documents.

- -The same kinds of scientists, but also with other ones, interested in the human spiritual evolution, try to decode some human history documents. Interesting researches refer to the Bible Code that seems to be organized in a fractal and holographic mode. Going deeper is possible to obtain detailed data of the past, present and future.
- -It is possible that "the human signal perception" considers simple operations on a multi-level perception with a very efficient
- *storage*,
- *communication* and
- *access of information*.

- -Researched results in bioengineering try to consider the *Human genetic code* in cryptography. The “Junior Nobel Price” was attributed in 2000 to a young American student of Romanian origin, at that time, Viviana Risca, for DNA cryptology. The described mechanism is an alternate secure cryptology technique.

Spiritual Concepts as Possible Technical Solutions

- -The material life has a very profound structure. A strong connection can be established between the material and spiritual life based on *information*.

- -The information is considered a neutral element composed by energy (+, positive, light) and matter (-, negative, dark).
- -The information interaction is realized by signals, signs, symbols, using a minimum energy, (see brain structure, genetic code, etc.).

-Between the entropy and the information, we have an opposite relation.

Holistic Perspective

- -The holistic perspective considers the universe as an undivided or whole element.
- -The antic visions specify that everything can be structured in a holographic manner.
- -The acupuncture therapy, the iridology therapy, etc., use the holographic concepts, considering that in each part we have the whole. In this mode, we are able to consider a global perspective.

- -These ideas can be considered strange for a part of "scientists" because they represent no palpable ideas.
- -Here we must specify that the spiritual state is a sattvic (elevate) state that corresponds to an *unstable equilibrium*. The equilibrium is usually obtained by many positive and negative states, and in this mode, we reach a neutral or zero state. In signal processing this is obtained as a *zero crossing* state.
- -The spiritual level of the "scientists" has a significant influence on the obtained results.

- -The *quantic theory* specifies that it is not possible to foresee an event in an exact manner.
- -The *human ego* (selfishness) level respects the uncertainty theory of Heisenberg; that is why, it is so difficult to obtain important results.
- -In the *Big Numbers theory*, considering medium values, the apparent micro disorder (specific to the ego) is eliminated at the macro level (specific to the universe), where we have a divine order.

- -The *dissipative systems* are disorder and open systems but the chaos from the systems is a creative one, revoking the old order and transforming it into a new state.
- -The *synergetic* theory may be used to understand the new order obtained. The synergetic field, that is opposite to the entropy, is upper the 3D dimension representation, and can be associated with higher formulae of the visionary scientists.

Education-Virtual education

- -The *physical, etheric, astral, causal, etc. structures* are able to offer a more complex perception of the ideas.
- - In *education* - that is why live conferences, live courses, etc. have a powerful impact - we have the possibility to understand in a more profound mode the new ideas using a complex *connection* between the participants and the high-level energies.
- The *virtual education* is able to offer many data with a lot of *links,* but is very difficult to transfer the profound feeling of the lecturer and participants at this moment. New facilities by integrating all 5 senses will improve the virtual education in near future.

- -In software applications, a *connection* usually refers to classes and a *link* refers to instantiated objects.
- -To refine the elements in that direction, can be a new orientation in research activity.
- -The *astral energy transfer* can be realized as a snapshot with a high protection. In this case, we do not consider a local space and time, but a global one.

Local and global level

- -On the *local level*, we can associate the *horizontal axis* corresponding to the appearances and material domain, and *"to have"* is the specific verb.
- -On the *global level*, we can associate the *vertical axis* corresponding to the spiritual domain, and *"to be"* is the specific verb.
- -The "to be" state offers a profound peaceful state, an inside serenity.
- -In "to have" we acquire values, and in "to be", we recognize our own values.

Professor-Students Connection

- -The Professor-Students *connection* must be considered as a spiritual force that will offer the cohesion, the community, the serenity, the welfare.

- -The *synergy* in this case will manifest as the Professor-Students force, being a spiritual force expressed by the consciousness power, which is a very huge power.

Pure Nature

- -An important element in the spiritual evolution, as Pythagoras considered, is a pure food and the nature community.

- -The pure energy food, the rivers, the forests, the mountains, etc. will create the possibility to obtain a *faster spiritual evolution.*

Dynamic structure

- -Each structure is a dynamical one that will evolve by ordering laws, new structures being obtained.
- -The *common world* is a cause-effect type (invoking duality), apparently linear with *elementary bricks and a fractal rule*, but using the Big Numbers law, at a moment a qualitative step will be achieved.
- From this step it is possible to pass beyond the duality, to discover the *Is-ness (Self)*, no-time, no-space, unlimited, ….

Nonlinear systems

- -The *nonlinear systems* will keep the basic state using the synchronicity.
- -These systems contain the significance of the whole, the holograms are the basic elements, and the order is more profound.
- -The human consciousness may be considered a dissipative and nonlinear system.
- Mind is a low-level consciousness, and the Self the pure (ultimate) consciousness.

Human mind (low-level consciousness) configurations

- The main configurations are:
- - *perceptual*, each sense will achieve information and the interactions will be very complex,
- - *relational*, will refer to the qualitative aspects of the system,
- - *total*, the qualitative aspects of a system that can be isolated, and the outside influence will be minimal.

System concept

- -A system is a complex ensemble of components with interactions between components.
- - It is possible that the system has some properties, which no components have.
- -The system offers the *unity*, and it is composed by *sub-systems* with their own unity respecting the holographic principles.
- -The *advanced technical systems* must be designed so that each part of the system can represent the whole system (holographic).

System classification

- The systems can be classified as:
- - real (physical, chemical, etc.), virtual (mathematical, akashic, etc),
- - opened (dissipative), closed (neglected interactions),
- - stable, unstable,
- - linear, nonlinear, etc.

Feedback-systems

- -The feedback systems, without outside interactions, are dissipative ones with adjusting facilities.
- -In this case, the system evolution is inside the system, we may consider a *global evolution*.
- -In the teaching process, these are the *perfectible instructions systems*.

Causality

- -A *cause-effect* law, or preceding and succeeding aspects, being characterized by out of habit as Hume specified, cannot describe the mathematical logic and the evolution.
- -The *connection* networks are nonlinear, like the universe that is a huge organism, where everything depends on anything; in the telecommunication domain, and not only, the nonlinearity, must be considered in the research activity.

Hazard

- -The universe does not fulfill all these hypotheses. In the universe, *nothing is accidental*, everything happens, as God will.
- -Einstein refers to *hazard* (or one may consider the possible sixth human sense (spirit is the sixth sense by others)), as *"The hazard is when God walks incognito",* or *"God does not play game of dice"*.

Aggregate

- -The universe structure is not a simple aggregate of objects; it is considered a *texture* that connects the components from the micro level with the macro level, offering a *high-level order*.
- -We have nodes (that give information) and arcs used to link the nodes. The *Graph theory* is a very useful one to understand, design and use such an order.

The Human Language and Object Oriented Concepts

- -The *expression* is a creation action thanks to the potential action that became a manifestation.
- -The English word expression is very poor as sense. Other languages, such as the Romanian one, use the word "rostire" (uttering) with a more profound sense.
- -The *expression* of the *creation* will ex – press (ex - from outside) being fundamental in different religions as Christianity, Buddhism, Hinduism, Islamism, Judaism, Shivaism, etc.

Naming Power

- -God first expresses and next will create. The creation will be realized with Logos.
- -The Human language has the power of the God expression being a divine one.
- -The *Naming power* is an element that offers a subtle domination. Who offers a Name must resonate with the essence of the Name element.

Software Naming

- -In programming languages, the naming process is used from variables, functions, constants names, etc., to the new concepts like contextual naming, or naming and localization.
- -As examples see JNDI - Java Naming and Directory Interface as Java API, Naming Space in C++ and C#, packages in Java language, etc.

Language characterization

- -Any language is composed by the lexical part (vocabulary - specifying the *semantics*) and the grammar (the rules – specifying the *syntax*).
- -A language is a natural or artificial system composed by signs, signals and symbols. Letters and phonemes offering an image of the micro and macro universe express the language. Each letter, or specific phoneme, corresponds to a *vibration frequency* and it is possible to associate different *parts of the human body to it.*
- -It is known that the *alternate therapy* based on sounds (vowels, mantras, etc.), images, videos etc. and the power of the name are rediscovered nowadays.

- -The *spoken language* is the language considered by a collectivity, there being a strong connection with the thinking. The words, sentences, phrases are used to express.
- -The language will structure the thinking and the thinking will structure the language.
- -The human language is considered a *sequential one*, and we make an order inside our thinking with the language.
- -Chomsky specified that the language structure be given by:
- - *significance*, the profound meaning,
- - *order*, the superficial structure.

Particular Language Forms

- Inside the universe logos, we have some particular language forms.
- -The *discursive form* of the logos, the current human speech is expressed by creation words being a uni-polar language.
- The *soul language* is not expressed by words, being usually expressed by symbols and archetypes, and it is a multi-polar language.

- -The computers languages evolved from the assembling languages based on mnemonics, to some specific structured languages, object-oriented languages, formal languages, dedicated frameworks as languages, etc.
- -The ***computer languages evolution may be expressed by the human [language] evolution.***

NLP

- The NLP (Neuro Linguistic Programming) is a modern psychology theory that tries to discover some efficient thinking and communication techniques if is used in a benefic mode.

-The aim is to create *dedicated patterns* that will correspond to the obtained performances in each domain.

Software Patterns

- -The software patterns are *reusable solutions* used as a new orientation to develop software applications.
- -The *Patterns* offer an additional benefit for less experienced programmers.
- -It is possible to use *constructive ways* of organizing the software with Patterns.
- -It is also possible to use other patterns that are not constructive, named *AntiPatterns*. The AntiPatterns can cancel out the benefits of patterns.

Intelligence-positive and negative

- -The intelligence comes from *inter* and *ligo*, that means to practically link different things. -The *intelligence may offer* harmony among mind, soul and body. In this case, the intelligence is *positive*.
- -The intelligence can be also demoniac. A good example at this moment is to use the intelligence to develop software "viruses" that are able to destroy a computer, a mobile phone, etc.

Wisdom and positive experience

- -The ***wisdom will be always a positive*** concept.
- -In programming languages, and not only, if the experience is well oriented, one may understand that, “Experience gives programmers wisdom”.
- -That is why, it is very important to understand the real and positive experience.

Basic Software Methodologies

- The basic software methodologies used to develop dedicated applications are:
- - structured methodologies based on procedural applications,
- - object oriented methodologies,
- - formal methodologies, etc.
- -As structured methodologies, the most known was SSDAM (Structure Systems Analysis and Design Methodology) developed by the Computing and Telecommunication Agency, MERISE being representative for Europe and North America.

Formal Methodologies

- -In the formal methodologies, the discrete mathematics is used, not as a complete methodology, but usually to design live system development cycles.
- -State based models, process algebra, etc., are used, and as representative formal methodologies we have VDM (Vienna Development Method) from the IBM laboratories and the Z language from the Oxford University.

OO Methodologies

- -The Object Oriented (OO) Methodologies started with the Simula project; nowadays the C++0x/1y/2z, C#, Python, Swift and Java offer the most used OO software methodologies with a lot of refinements.
- -OO Programming, OOP, represents a new paradigm; by paradigm, in this case, we understand a model or an example.
- -The *simple life can be easy represented as an OO Methodology*, and to understand the OOP it is very useful to make some connections with the human life.

OOM example

- Let us consider a simple example that involves OOM.
- -It is spring (South emisphere), the life starts once again, and many flowers make our life joyful.
- -We want to send some flowers to a friend, Laura, from another town.
- -The Flora flowers shop will do the task. We will specify the address, what kind of flowers (type and number), etc.

Agent-Method

- -Flora is an *agent* that will receive my *message* and has the responsibility to send the flowers
- -Flora has a *method* (based on a mechanism or algorithm) to achieve my task, the details for me are not important (hidden).
- -If I am very curious to know how the flowers are sent, maybe Flora will send a message to another flower shop from Laura's town that will do the task. In this case, a compensation mechanism will be considered between the two flowers shop.

OOP Involvements

- In OOP, *many involvements* are considered to simplify the solving process.
- -In this case, the *agents* are considered as *distributed objects*, offering a service or an action used by many members of the community.
- -The requirements will specify an *action* that will be initiated by *sending a message* to an agent.
- -The receiver is the object that will receive the initial message. If the message is accepted, the *responsibility* to execute the action received will also be accepted.
- -As an *answer* to the message received, the receiver will *execute some methods* to satisfy the addressed requirement.

Encapsulation-message

- -The *encapsulation* process (protection- how the flowers will arrive at the destination) is a very important aspect in OOP.
- -In structured programming, the main role was performed by *functions* (procedures).
- -The *messages* are different from functions because:
- - the message is *addressed* to a designed receiver
- - the message *interpretation depends on the receiver* and can vary depending on the receiver (Laura will be happy to receive the flowers, or not).

Late and Early binding

- When we are very happy, it is possible to send flowers to the first woman in the street. In this case, the receiver will be known only when we meet the first woman, in programming that means, *late binding*; the reference will be specified during the application execution. In programming, it is also possible to specify the receiver from the beginning that means *early binding*, (Laura).

Behavior

- -The *behavior*, in terms of responsibility is another OOP concept. The abstraction degree will increase, and it will allow the highest degree of independence of objects.
- -In procedural applications, the data structures are used and modified with functions.
- -OOP asks data structures to execute services, being important what the data structures can do for us and not what we can do with data structures.

Classes, Hierarchies

- The classes and class *hierarchies* are important elements in OOP.
- -Flora is an instance of the flowers shop class; let us consider Flower the class name.
- -It is possible that Flora object belongs to a more general concept, the Supermarket class.
  -In this case, Flower is a subclass of the Supermarket class, an *inheritance* process being considered.

Abstract Class

- It is possible to have *abstract* classes. In this case, it is not possible to instantiate objects from such a class. An example is the *Human* class, which is an abstract class, being a base class in an inheritance process for the *Women* and *Men* classes, classes that are able to be used to instantiate objects.
- -Usual upper in the hierarchy, we consider a base class as a *root class*. The concept seems to come from the *human monotheist religions* where God (as Person or Energy- Presence) is higher in hierarchy. The Java classes from the standard packages consider the Object class with the same role.

Overriding-Virtual methods

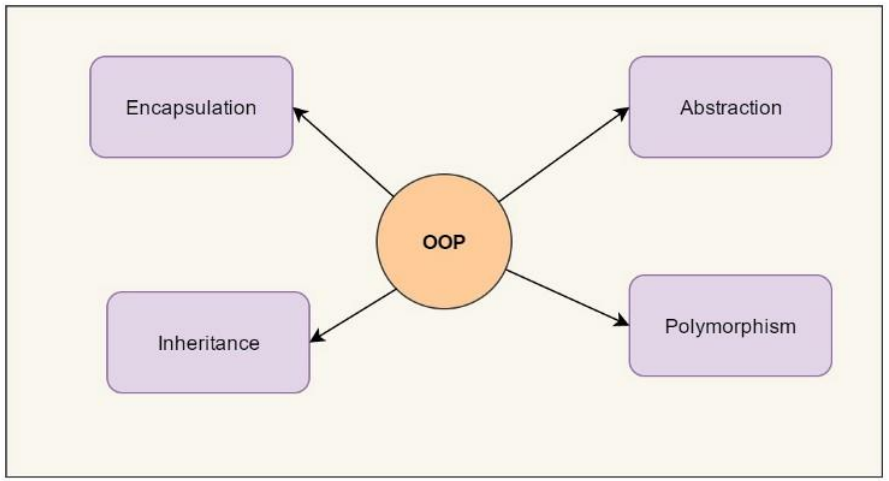
- -It is possible that some methods from a hierarchic structure will be redefined because the role was changed. This process is named *overriding*.
- -The method has the same signature with the initial one, that is a *virtual method*, and it is possible to call the initial method using an inheritance mechanism.
- -The method name, the number, the type and the order of the parameters give the *signature* of the method.

Polymorphism and Exceptions

- -The *polymorphism* is usually presented only as an *overloading* process, as a static process. In this case, the methods have the same name but a different signature. *Overriding* is other polymorphism aspect, dynamic, invoking an inheritance process.
- -In the mammal world, the ornithorhynchus is an exception using eggs for reproduction.
- *-Exceptions* represent a very useful new concept in OOP that offer reliability to the applications.

The four (Pillars) basic principles of Object-Oriented Programming

- These are:
- Encapsulation,
- Data Abstraction,
- Polymorphism
- Inheritance.



Four Pillars of Object Oriented Programming

These are also called as four pillars of Object-Oriented Programming.

Some OOP theorists also put the concept of *exception handling* as additional *fifth fundamental* principle of OOP.

Exceptions are supported in all modern object-oriented languages and are the primary mechanism of *handling errors* and *unusual situations* in object-oriented programming.

Animistic OOP and OOD

- -The OOP is described as an “animistic” process based on a “Help Host” that assists the programmers to find the adequate solution.
- -OO Design, OOD, considers the problem to identify objects from the real world and to develop an independent language, organized around these objects. The design technique used in this case is a *responsibility-driven design*.

Responsibility

- -The *responsibility* is a very important requirement in daily life and in programming.
- - When we create an object responsible for an action we must specify at least the frame where the observed rules will be achieved.
- -The responsibility also considers a *high degree of independence* and *non-interferences*.

Independence and Code reusable

- -The Flora flowers shop has the *independence* to choose how to send the flowers to Laura.
- -This mechanism is *not supervised*, which is specific to OOP.
- -Code *reusable* is an important mechanism very easy to be used in OOP if the programmer has a great experience.

OO Techniques (OOT)

- OOT, specifies that the software application is organized as a *discrete collection of objects* that includes the data structures and the methods. Four steps are usually considered:
- - *analyses*, based on an abstract model,
- - *system design*, based on subsystems considering the analyzed structure and the proposed architecture,
- - *object design*, with implementation details of data structures and algorithms,
- - *implementation*, with a specific programming language.

OOP, OOD, OOT

- -OOP, OOD and OOT are *connected* together.
- -The behavior application is a very important element considering the user interaction.
- -The behavior manifestation, independence and the information content, characterize the application components.

Components behavior

- Components behavior represents a set of tasks that the component can execute and is expressed by a protocol.

-the state of a component represents all information that a component contains

-a class describes a set of objects with similar behavior

- In OOD two concepts are used:

-*Cohesion*, defines the responsibility degree of a component considering the overriding process

-*Coupling*, describes the links among software components that must be reduced

Parnas principle

- The Parnas principle is very important in the mechanism of a software application design.
- -This principle *separates the interface* module *and the implementation* module. -For a user it is very important to offer an easy useable interface that is why this part uses innovative concepts including multi-discipline concepts.

- Software components are developed in parallel by different programmers that may consider Parnas principles as:

- the development of a component must offer to the user all information to obtain useful effective services and no more other information

- the development of a component must contain all necessary information to realize the assigned responsibilities and no more other information

Component Implementation

- The component implementation considers:

-data structures design

-algorithm description

- -a) component *implementation* using a programming language. Usual a facilitator component will be used (behind the scene) and preconditions are imposed
- -b) component *integration*, starting with stub components that are limited components and a unit testing process
  - -testing integration, stubs are replaced with real code
  - -in the complete implementation a regressive testing by modifying some components will be used
- -c) software *maintenance*

Life and Programming

- -A lot of OO methodologies came from the human life.
- -A new direction considered in the software development is the ***organic computing.***
- -***That's why understanding life is easier to program computers.***

Conclusions

- -The ***technical evolution*** is based on the human evolution and the valuable spiritual ideas are used in different technical domains.
- -Programming languages and software applications are very close to these concepts.
- - The ***Human evolution***, on all levels, is able to offer new revolutionary technologies that many humans expect.

References

- 1. Omraam Mikhael Aivanhov,
- -Alchimia spirituala: cautarea perfectiunii (Le travail alchimique ou la quete de la perfection, 1989, Prosveta S.A.- B.P. 12, 83601 Frejus Cedex), Colectia Izvor, nr. 221
- -Centrii si corpuri subtile (Centres et corps subtils, 1990, Prosveta S.A.- B.P. 12, 83601 Frejus Cedex), Colectia Izvor, nr. 219, Edit. Prosveta
- 2. Budd T., Understanding Object Oriented Programming with Java, Addison Wesley, 2000
- 3. Carlos Castaneda, Latura activa a infinitatii (The Active Side of Infinity, 1998, Laugan Production), Ed. RAO, 2003
- 4. Mihai Draganescu, Profunzimile Lumii Materiale, Edit. Politica, Bucuresti, 1979 (Romanian Language)

- 5. Albert Einstein, Cum vad eu lumea-Teoria relativitaii pe intelesul tuturor (Mein Weltbield, Querido Verlag, Amsterdam,1934 - Out of my Later Years, Philosophical library, New York, 1950), Ed. Humanitas, Bucuresti, 1996
- 6. K. S. Fu, Syntactic Methods in Pattern Recognition, Academic Press, New York, 1974
- 7. C. A. Giumale, Limbajele de programare la sfarsit de secol, o bariera de cultura profesionala, PC Report, august 1997, pp. 19-20 (Romanian language)
- 8. Mark Grand, Java Enterprise Design Patterns, John Wiley & Sons, 2002
- 9. Jiddu Krishnamurti, Trezirea inteligentei, (The Awakening of Intelligence-Krishnamurti Foundation Trust, 1973), Ed. Herald, 2002

- 10. Jiddu Krishnamurti, Despre Educatie, (Education &The Significance of Life- Krishnamurti Foundation Trust, 1973), Ed. Herald, 2001
- 11. Erwin Schrodinger, Ce este viata? Si Spirit si Materie (What is Life? & Mind and Matter, Cambridge University Press, 1967), Ed. Politica, Bucuresti, 1980
- 12. Edouard Schure, Marii Initiati. Vedere generala asupra istoriei secrete a religiilor. Pitagora, (Les Grands Inities. Esquisse de l'Histoire Secretes des religions- Paris, Libraire Academique) Ed. Arc, 1997
- 13. Rudolph Steiner, Fundamentals of Therapy, Cosmology, Religion and Philosophy, 1922, The Rudolph Steiner Press, 1983, www.elb.com/Steiner/Books [17.02.2004]

- 14. Mircea-Florin Vaida si colab., Java 2 Enterprise Edition (J2EE). Aplicatii multimedia, Editura Albastra 2002, Cluj-Napoca
- 15. Mircea-Florin Vaida, Image Processing and Pattern Recognition, Technical Report, THR 2003002, Technical University of Cluj-Napoca, October 2003
- 16. Mircea-Florin Vaida, Dinu Chira, Distance Learning Perspective using Web facilities, Fifth IASTED International Conference on Internet and Multimedia Systems and Applications, accepted for publication 340-019, pp. 6, August 13-16, 2001, Honolulu, Hawaii
- 17. Mircea-Florin Vaida, Procesarea Imaginilor Medicale. Ingineria Programarii in vederea dezvoltarii de aplicatii in domeniul bio-medical, Casa Cartii de Stiinta, Cluj, 2000
- 18. D. A. Watt, Programming Language Concepts and Paradigms, Computer Science, Prentince Hall, 1990
- 19. Mircea-Florin Vaida, COLLABORATIVE EDUCATION TEAMS DEVELOPMENT USING ALTERNATIVE METHODOLOGIES, 11th International Conference on Education Technology and Computers, ICETC 2019, 28-31 October, Amsterdam, Netherlands