P 5 task 2

a) Inheritance

b) Abstraction

c) Instance

d) Encapsulation

g) Template

f) Polymorphism

e) Class

h) Object

i) Method

P 5 task 3

a) An object can be defined as a data field that has unique attributes (characteristics) and behaviour.

b) Object-oriented programing allows programmers to think of software development as if they are working with real-life entities (objects).

c) There are four pillars (main principles) of object-oriented programming: Encapsulation, Abstraction, Inheritance, and Polymorphism.

d) Object is a(n) instance (example) of a class.

e) The process of encapsulation states that classes cannot communicate or change along with any particular variable (parameter) and function of an object.

P 6 Task 4

a) The main idea of OOP is to organize software design around objects, which are instances of classes. It focuses on data (objects) rather than functions and logic.

b) OOP treats software development by allowing programmers to think of it as working with real-life entities. Objects have fields to store data and can perform various methods.

c) In OOP, an object is an instance of a class, while an instance refers to a specific realization of an object.

d) A method is a segment of code that defines an action and can modify the state of a class. It is activated by a message.

e) The main principles of OOP are Encapsulation, Abstraction, Inheritance, and Polymorphism.

f) Abstraction and Encapsulation both involve hiding details and focusing on essential aspects. Abstraction hides properties and methods, while encapsulation encapsulates objects individually in classes to control communication and changes.

g) Inheritance helps avoid repetitive coding by allowing the extension of existing code functionality. It eliminates the need to redefine properties and methods for each object by inheriting them from a general object or class.

h) Polymorphism allows developers to provide multiple implementations for methods depending on the object type. It enables redefining and updating the way a task is performed.

i) The main benefits of OOP include code reusability, scalability, efficiency, organization, and easier collaboration in large and complex projects. OOP allows for the growth and maintenance of systems, even when using scalability approaches like microservices.

P 6 Task 6

a) Object-oriented paradigm is very popular and widespread today. (True)

b) OOP is always beneficial. (False) - OOP has its advantages and disadvantages, and its benefits depend on the specific context and requirements of the software project.

c) Procedural programming offers a straightforward approach. (True)

d) It's easy to present simple programs in terms of object-oriented approach. (False) - Simple programs can often be more easily presented using procedural programming rather than the object-oriented approach.

e) Object-oriented code allows to create several mini programs where each object contains its own data and logic. (True)

f) The end result of procedural approach and object-oriented one is not always the same. (True) - Procedural and object-oriented approaches can lead to different program structures and design patterns, resulting in different end results.

g) OOP approach is better than procedural one. (False) - The choice between OOP and procedural programming depends on the specific requirements of the project and the preferences of the developers. Both approaches have their strengths and weaknesses.

h) Code reusability is one of the main pluses of object-oriented paradigm. (True) - Code reusability is one of the benefits of OOP, as objects and classes can be reused in different parts of a program or in different programs.

i) Logic and functional programming languages are used today mainly for creating web, mobile and desktop apps. (False) - Logic and functional programming languages are used in a variety of domains, including web, mobile, desktop apps, scientific computing, artificial intelligence, and more. Their usage is not limited to a specific type of application.

P7 task 7

1. C
2. A
3. F
4. B
5. D
6. G
7. E