**Introduction to the Software Engineering – Test 3. Class Diagram**

**Assignment:**

**1. Create UML Class Diagram describing following structure and relations:**

- following objects are defined - *Item, Item\_in\_Cart, Cart, Order, Invoice, Customer, Warehouse, ItemType, SuperCart*.

- *Item* has defined properties - name, weight.

- *Warehouse* consists of *Items*. If we remove the *Item* from the *Warehouse*, it can be considered cancelled and ends to exist.

- *Item* may consist of other *Items* - so-called sub-items. There is therefore a role of subitem. An *Item* can have n *Items* in the role of sub-item.

- *Item* has a one-sided relation to the *ItemType*. The *ItemType* has no idea about the binding.

- The *Item* can be contained in many *Item\_in\_Cart*. There can be only one given *Item* in an *Item\_in\_Cart*.

- The *Item\_in\_Cart* has one *Cart*. *Cart* can have a many *Item\_in\_Cart*.

- *Cart* is inherited from *SuperCart*. The *Cart* depends on *ItemType* – i.e. sometimes this class uses it for its activities.

- *Cart* can have many *Orders*. The *Order* has one *Cart*.

- *Order* has one *Customer*. *Customer* has many *Orders*.

- *Customer* has many *Invoices*. *Invoice* has one *Customer*.

- *Invoice* has one *Order*. *Order* has many *Invoices*.

**2. Write in the programming language the *Cart* and *Item* classes.**