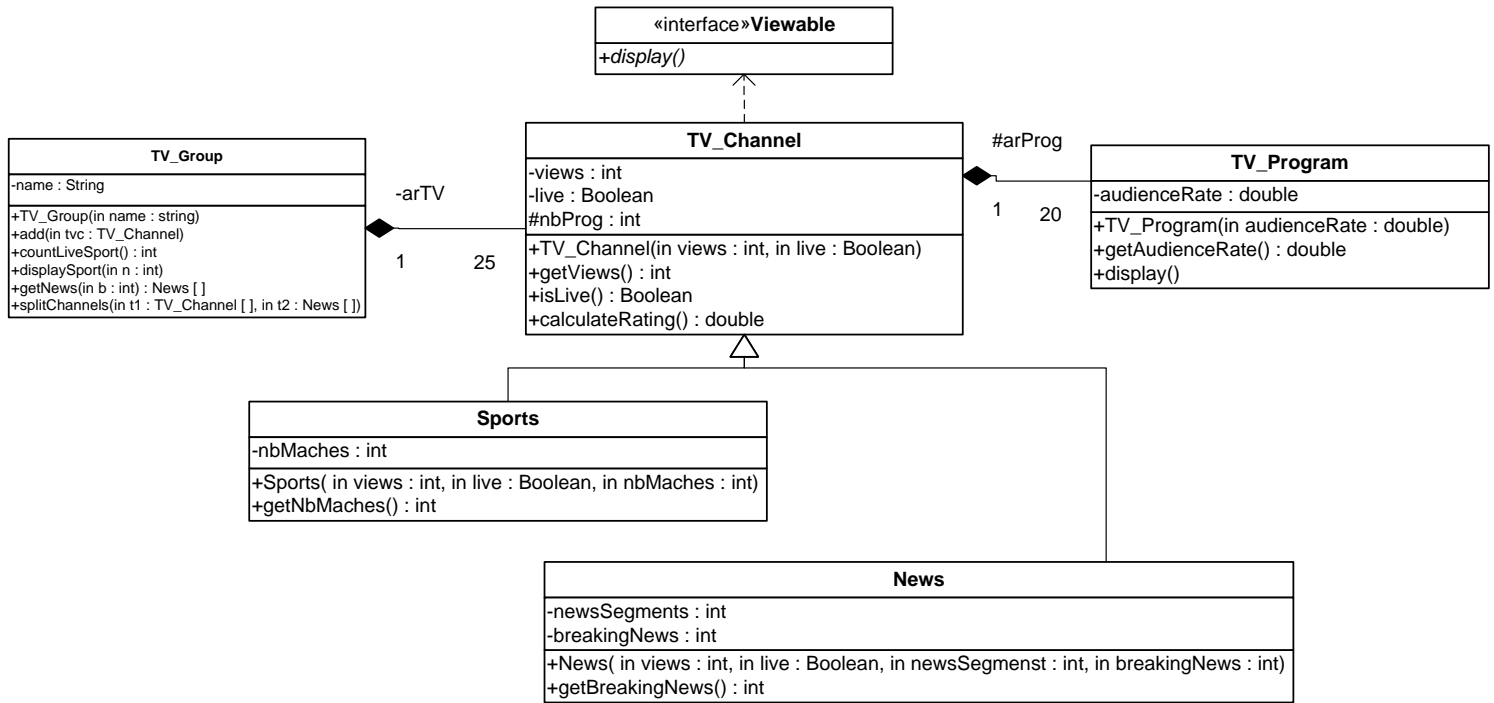




Lab: Abstract Methods and Interface



Interface **Viewable**:

- **display()** : display all attribute of the class.

class **TV_Program**:

- Attributes:
 - **audienceRate**: the audience rate of the TV program.
- Methods:
 - **TV_Program (audienceRate: double)**: constructor
 - **getAudienceRate()**: this method returns the audience rate of the TV program.
 - **display()**: displays all attribute of the class

Class **TV_Channel**:

- Attributes:
 - **views** : number of views of the channel.
 - **live**: true if channel is live. False otherwise.
 - **nbProg**: number of TV programs of the channel
- Methods:
 - **TV_Channel(views: int, live: boolean)** : Constructor
 - **getViews()**: returns the number of views of the channel.
 - **isLive()** : returns the value of the attribute **live**.
 - **CalculateRating()** : this method calculates and returns the rating of the channel as follows:

Sports : $views / no. matches * 1.5$

News: $(views / breakingNews) +$
 $\sum audience\ rate\ of\ all\ Tv\ programs\ of\ the\ channel / number\ of\ programs$

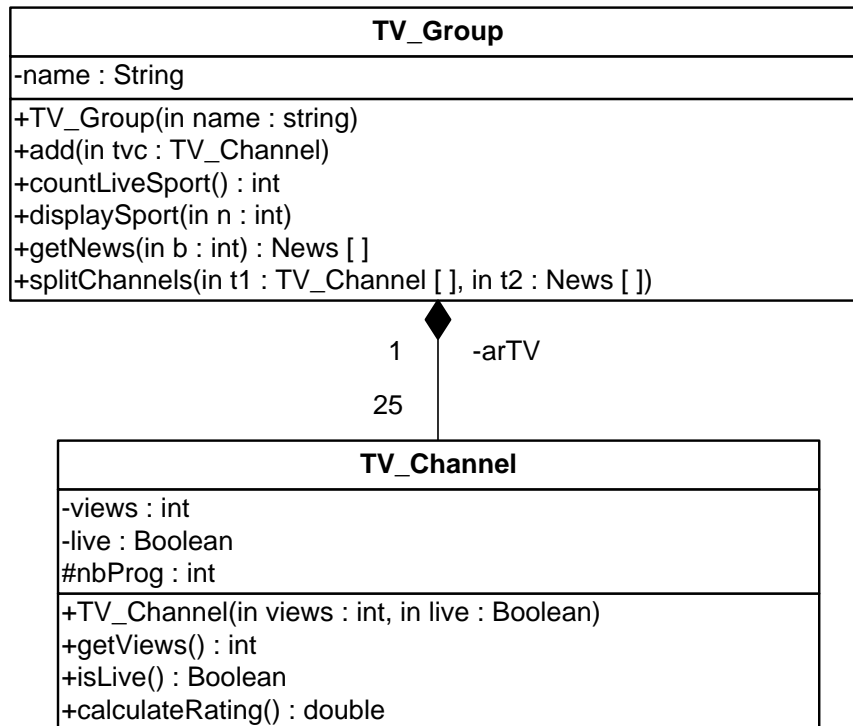
Class **Sports**:

- Attributes:
 - **nbMatches** : number of matches of the channel.
- Methods:
 - **Sports (views: int, live: boolean, nbMatches: int)** : Constructor
 - **getNbMatches()** : returns the number matches of the channel.

Class **News**:

- Attributes:
 - **newSegments**: number of news segments of the channel.
 - **breakingNews** : average occurrence of breaking news.
- Methods:
 - **News (views: int, live: Boolean, newsSegments: int, breakingNews: int)** : Constructor
 - **getNewsSegments ()** : returns the number of news segments of the channel.
 - **getBreakingNews ()** : average occurrence of breaking news.

Question 1: Translate into java the Interface **Viewable**, class **TV_Program**, class **TV_Channel** , class **News** and class **Sports**.



Class **TV_Group**:

- Attributes:
 - *name* : name of the TV group.
- Methods:
 - *TV_Group (String name)* : Constructor
 - *add(TV_Channel t)* : adds the TV channel *t* to the TV group.
 - *countLiveSport()*: this method counts and returns the number of Sports channels that are live.
 - *displaySport(n: int)* : this method displays all the information of all Sports channels that have a number of matches greater than *n*.
 - *getNews(b: int)* : this method returns an array of News channels containing all News channels that have more than *b* breaking news.
 - *splitChannels(t1: TV_Channel[], t2: News[])*: this method splits the channels into two groups *t1* and *t2*. *t1* for **Sports** Channels having a number of matches greater than 20. *t2* for **News** channels which number of views exceeds (is greater than) 3000.

Question 2: Translate into java code the class TV_Group.