Requirements Specification Document

Group number: 02

Lab Section: L01

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Search Module

Template Module

Search(String)

Uses

YouTuber, Read

Syntax

Exported Constants

None

Exported Types

Search = ?

Exported Access Programs

Routine name	In	Out	Exceptions
new Search	String Title		
displayStats	String Title, a sequence of YouTuber	String Country, String Category_name, String JoinDate, ℕ Followers ℕ Videos	NotFoundException

Semantics

State Variables

name: String

youtuberList: a sequence of YouTuber

State Invariant

None

Access Routine Semantics

new Search(n : String)

- transition: name := n
- output: out := self
- exception: none

displayStats(s : String, l : sequence)

- output: out := <Country, Category_name, JoinDate, Followers, Videos>
- exception: ($s \notin l \Rightarrow$ NotFoundException)

Graph Module

Template Module

Graph(ℕ)

Uses

YouTuber, Read

Syntax

Exported Constants

None

Exported Types

Graph = ?

Exported Access Programs

Routine name	In	Out	Exceptions
new Graph	ℕ, a sequence of YouTuber	Graph	
Vertices		ℕ	
Edges		ℕ	
addEdge	YouTuber, YouTuber		
adj	YouTuber	YouTuber	

Semantics

State Variables

vertices: ℕ

edges: ℕ

AdjList: a sequence of a sequence of YouTuber

State Invariant

None

Assumptions

The constructor Graph should be called before calling any other methods.

Access Routine Semantics

new Graph(V, L)

- transition: vertices, edges, AdjList ≔ V, 0, L
- output: out ≔ self
- exception: none

Vertices()

- output: out ≔ vertices
- exception: none

Edges()

- output: out ≔ edges
- exception: none

addEdge(v, w)

- transition: (v, w : YouTuber | L : a sequence of YouTuber : (v =∈ L[0] ∧ L ∈ AdjList ⇒ L.add(w)) ∨ (w ∈ L[0] ∧ L ∈ AdjList ⇒ L.add(v)))
- exception: none

adj(Y)

- output: out ≔ (adjacency : YouTuber | Y: YouTuber, L : a sequence of YouTuber : (Y = L[0] ∧ L ∈ AdjList ⇒ adjacency = L[1..|L| - 1])
- exception: none

YouTuber Module

Template Module

YouTuber

Uses

None

Syntax

Exported Constants

None

Exported Types

YouTuber = ?

Exported Access Programs

Routine name	In	Out	Exceptions
new YouTuber	ℕ, String, ℕ, String, String, String, ℕ	YouTuber	
getCategory_id		ℕ	
getCategory_name		String	
getCountry		String	
getFollowers		ℕ	
getJoinDate		String	
getTitle		String	
getVideos		ℕ	

Semantics

State Variables

cat_id: ℕ

cat_name: String

country: String

followers: ℕ

join_date: String

title: String

videos: String

State Invariant

None

Assumptions

The constructor “YouTuber” should be called before calling any other methods.

Access Routine Semantics

new YouTuber(id, n, c, f, j, t, v)

- transition: cat_id, cat_name, country, followers, join_date, title, videos := id, n, c, f, j, t, v
- output: out := self
- exception: none

getCategory_id()

- output: out := cat_id
- exception: none

getCategory_name()

- output: out := cat_name
- exception: none

getCountry()

- output: out := country
- exception: none

getFollowers()

- output: out := followers
- exception: none

getJoinDate()

- output: out := join_date
- exception: none

getTitle()

- output: out := title
- exception: none

getVideos()

- output: out := videos
- exception: none

Read File Module

Module

Read

Uses

YouTuber

Syntax

Exported Constants

None

Exported Types

Read = ?

Exported Access Programs

Routine name	In	Out	Exceptions
read	String	Read	FileNotFoundException
generateYouTuberList	String	Sequence of YouTuber	

Semantics

State Variables

filename: String

list: a sequence of YouTuber

State Invariant

None

Assumptions

The method “read” should be called before any other methods.

Access Routine Semantics

read(f)

- transition: filename := f
- output: out := self
- exception: File does not exist

generateYouTuberList()

- output: out := a sequence of YouTuber
- exception: none