UFOP (Universidade Federal de Ouro Preto)

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RELATÓRIO - BCC 322:

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Trabalho Prático 2 – Sprint 1

Construção de Simulações Baseadas na Dinâmica de Sistemas

Ouro Preto, Minas Gerais

14 de dezembro de 2021

PARTE 1 – Casos de uso

Caso 1: <u>Apenas um estoque</u>


```
Model m(inicialTime, finalTime, id);
Stock est(value);
m.add(&est);

OU

Model m(inicialTime, finalTime, id);
Stock est();
est.SetInitialValue(value);
m.add(&est);
```

Caso 2: <u>Apenas um Flow</u>

OBS: os nulls seriam de onde o Flow sai e aonde ele esta entrando, respectivamente

Exemplo: Flow flu(origem, destino);

```
Model m(inicialTime, finalTime, id);
Flow flu(stock *ori = null, stock *des = null);
m.add(&flu, null, null);

OU

Model m(inicialTime, finalTime, id);
Flow flu();
flu.connection(stock *ori = null, stock *des = null);
m.add(&flu, null, null);
```

Caso 3: Existe apenas um Flow e tem apenas uma entrada. A saida não existe.


```
Model m(inicialTime, finalTime, id);
Stock destiny(value);
Flow flu(stock *ori = null, &destiny);
m.add(&flu, null, &destiny);


OU




Model m(inicialTime, finalTime, id);
Stock destiny();
destiny.SetInitialValue(value);

Flow flu();
flu.connection(stock *ori = null, &destiny);
m.add(&flu, null, &destiny);
```

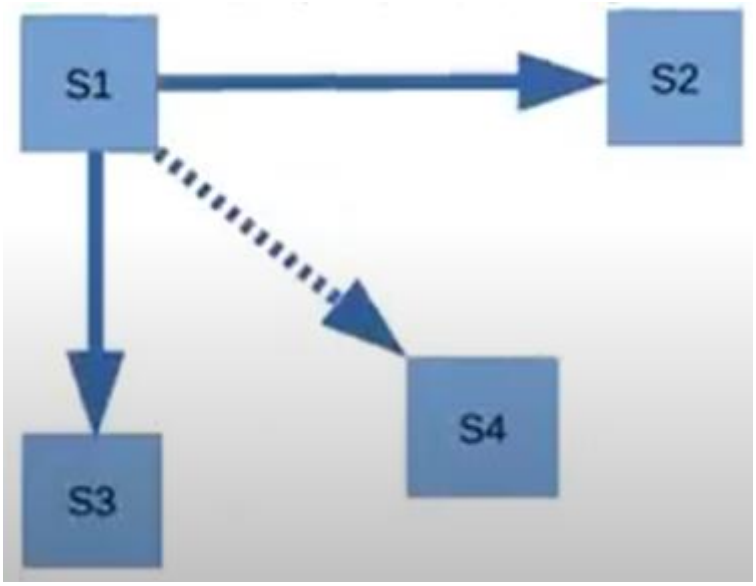
Caso 4: Um fluxo conectado à apenas um estoque na origem


```
Model m(inicialTime, finalTime, id);
Stock source(value);
Flow flu(&source, stock *des = null);
m.add(&flu, &source, null);

OU

Model m(inicialTime, finalTime, id);
Stock source();
source.SetInitialValue(value);

Flow flu();
flu.connection(&source, stock *des = null);
m.add(&flu, &source, null);
```

Caso 5: Um fluxo conectando dois estoques


```
Model m(inicialTime, finalTime, id);
Stock source(value1);
Stock destiny(value2);

Flow flu(source, destiny);

m.add(&flu, &source, &destiny);

OU

Model m(inicialTime, finalTime, id);
Stock source();
Stock destiny();

source.SetInitialValue(value1);
destiny.SetInitialValue(value2);

Flow flu();
Flu.connection(&source, &destiny);

m.add(&flu, &source, &destiny);
```

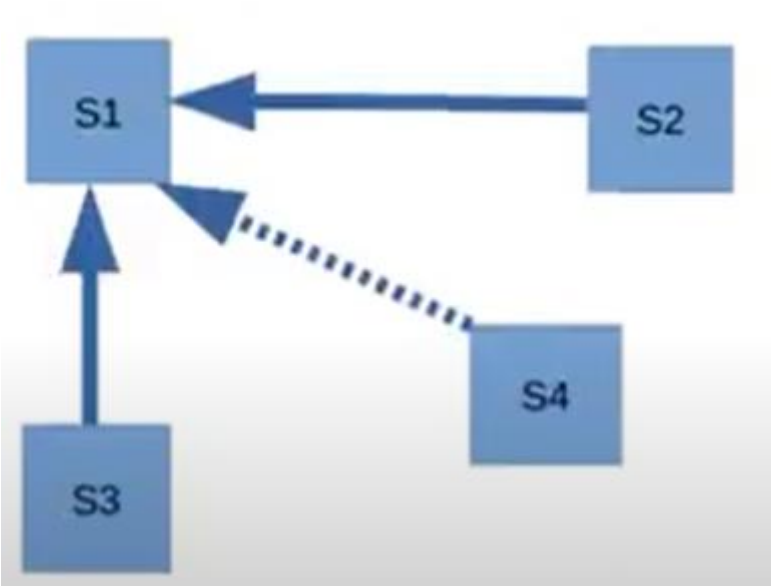
Caso 6: Um estoque que serve de origem a outros dois ou mais sistemas de destino




```
Model m(inicialTime, finalTime, id);
Stock source(value1);
Stock destinyA(value2);
Stock destinyB(value3);
Stock destinyC(value4);

Flow flu1(&source, &destinyA);
Flow flu2(&source, &destinyB);
Flow flu3(&source, &destinyC);

m.add(&flu1, &source, &destinyA);
m.add(&flu2, &source, &destinyB);
m.add(&flu3, &source, &destinyC);

OU

Model m(inicialTime, finalTime, id)
Stock source();
Stock destinyA(), destinyB(), destinyC();

source.SetInitialValue(value1);
destinyA.SetInitialValue(value2);
destinyB.SetInitialValue(value3);
destinyC.SetInitialValue(value4);

Flow flu1(), flu2(), flu3();
flu1.connection(&source, &destinyA), flu2.connection(&source, &destinyB),
flu3.connection(&source, &destinyC);
```

```
m.add(&flu1, &source, &destinyA);
m.add(&flu2, &source, &destinyB);
m.add(&flu3, &source, &destinyC);
```

Caso 7: um estoque que serve de destino para dois outros sistemas ou mais




```
Model m(inicialTime, finalTime, id);
Stock destiny(value1);
Stock sourceA(value2);
Stock sourceB(value3);
Stock sourceC(value4);

Flow flu1(&sourceA, &destiny);
Flow flu2(&sourceB, &destiny);
Flow flu3(&sourceC, &destiny);

m.add(&flu1, &sourceA, &destiny);
m.add(&flu2, &sourceB, &destiny);
m.add(&flu3, &sourceC, &destiny);

OU

Model m(inicialTime, finalTime, id);
Stock destiny();
Stock sourceA(), sourceB(), sourceC();

destiny.SetInitialValue(value1);
sourceA.SetInitialValue(value2);
sourceB.SetInitialValue(value3);
sourceC.SetInitialValue(value4);
```

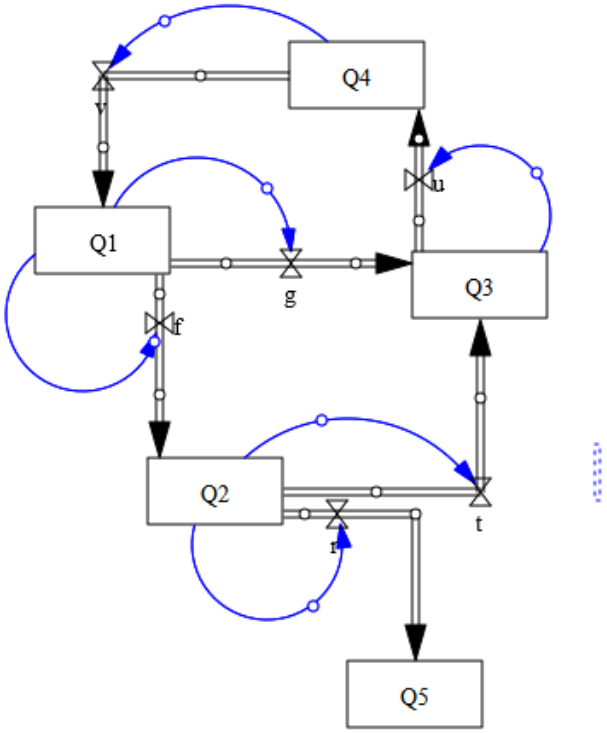
```
Flow flu1(), flu2(), flu3();

flu1.connection(&sourceA, &destiny), flu2.connection(&sourceB, &destiny),
flu3.connection(&sourceC, &destiny);

m.add(&flu1, &sourceA, &destiny);
m.add(&flu2, &sourceB, &destiny);
m.add(&flu3, &sourceC, &destiny);
```

Caso 8: Um estoque "ponte" que serve de origem para um determinado fluxo e destino para outro(s)


```
Model m(inicialTime, finalTime, id);
Stock DesOri(value);

Flow flu1(stock *ori = null, &DesOri);
Flow flu2(&DesOri, stock *des = null);

m.add(&flu1, null, &DesOri)
m.add(&flu2, &DesOri, null);

OU

Model m(inicialTime, finalTime, id);
Stock DesOri();
DesOri.SetInitialValue(value);

Flow flu1();
Flow flu2();

flu1.connection(stock *ori = null, &DesOri);
flu2.connection(&DesOri, stock *des = null);

m.add(&flu1, null, &DesOri)
m.add(&flu2, &DesOri, null);
```

PARTE 2 – Criterio de Aceitação

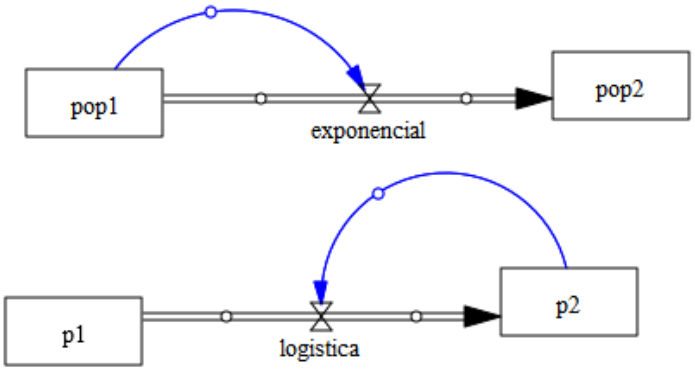
1º critério:




```
double value1, value2, value3, value4, value5;
double inicialTime, finalTime;

model m (inicialTime, finalTime, 1);

Stock Q1(value1, "Q1");
Stock Q2(value2, "Q2");
Stock Q3(value3, "Q3");
Stock Q4(value4, "Q4");
Stock Q5(value5, "Q5");

Flow fluF (&Q1, &Q2, 1);
Flow fluG (&Q1, &Q3, 2);
Flow fluR (&Q2, &Q5, 3);
Flow fluT (&Q2, &Q3, 4);
Flow fluU (&Q3, &Q4, 5);
Flow fluV (&Q4, &Q1, 6);

m.add (&fluF, &Q1, &Q2);
m.add (&fluG, &Q1, &Q3);
m.add (&fluR, &Q2, &Q5);
m.add (&fluT, &Q2, &Q3);
m.add (&fluU, &Q3, &Q4);
```

```
m.add (&fluV, &Q4, &Q1);

m.run();

m.print_results();
```

2º Critério:




```
double value1, value2;
double inicialTime, finalTime;

Model m (inicialTime, finalTime, 2);

Stock pop1(value1, "pop1");
Stock pop2(value2, "pop2");

Flow expo (&pop1, &pop2);

m.add(&expo, &pop1, &pop2);

m.run()

m.print_results();
```

OU

```
double value1, value2;
double inicialTime, finalTime;

Model m (inicialTime, finalTime, 2);

Stock p1(value1, "p1");
Stock p2(value2, "p2");

Flow logi (&p1, &p2);
```

```
m.add(&logi, &p1, &p2);

m.run();
m.print_results();
```

PARTE 3 – UML