Universidad Politecnica de Puerto Rico

Asignacion 10.1

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#121260

CECS 2222 Computer Programming II

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UML

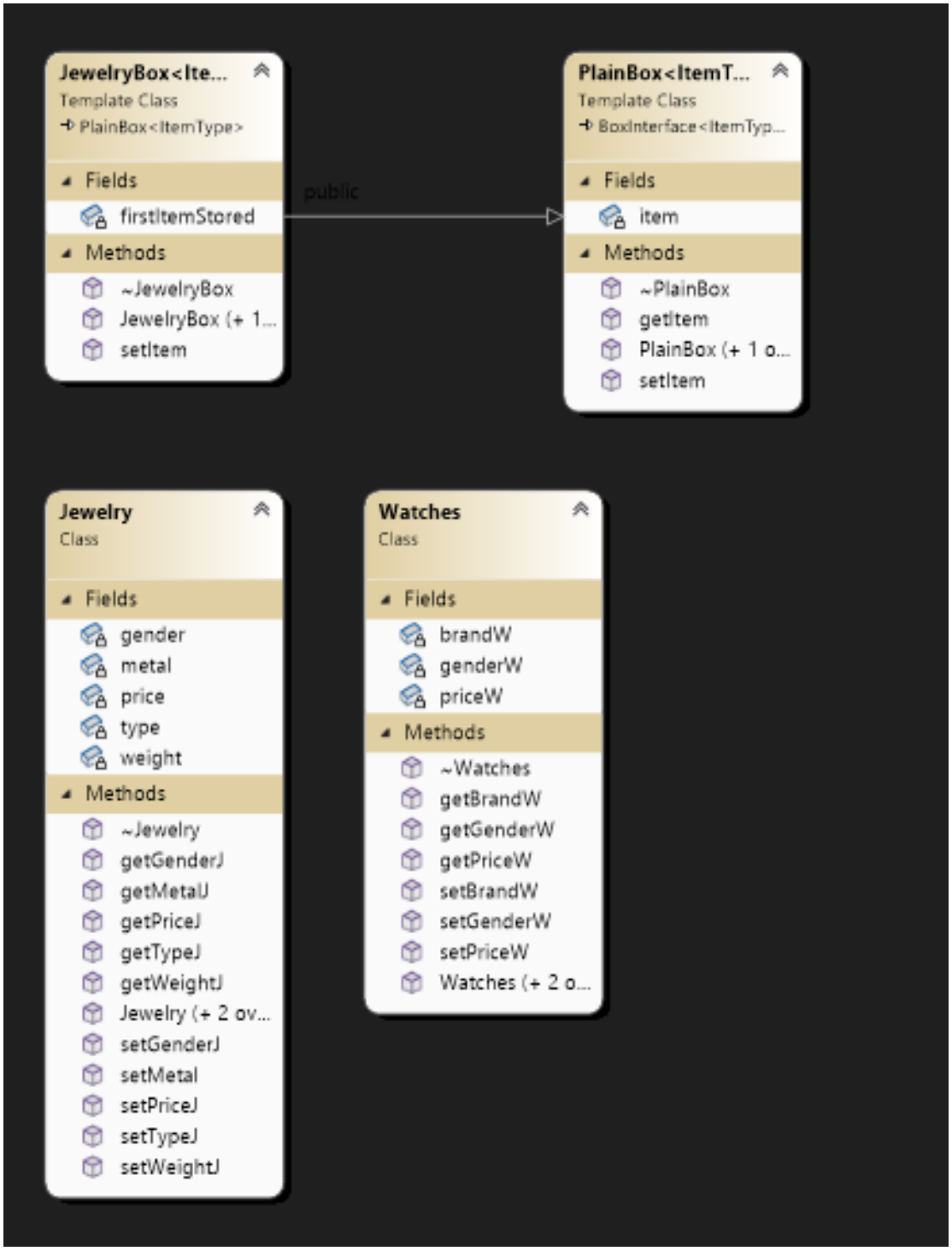

JewelryBox<Ite...
Template Class
PlainBox<ItemType>
Fields
firstItemStored
Methods
~JewelryBox
JewelryBox (+ 1...
setItem
public
PlainBox<ItemT...
Template Class
BoxInterface<ItemTyp...
Fields
item
Methods
~PlainBox
getItem
PlainBox (+ 1 o...
setItem
Jewelry
Class
Fields
gender
metal
price
type
weight
Methods
~Jewelry
getGenderJ
getMetalJ
getPriceJ
getTypeJ
getWeightJ
Jewelry (+ 2 ov...
setGenderJ
setMetal
setPriceJ
setTypeJ
setWeightJ
Watches
Class
Fields
brandW
genderW
priceW
Methods
~Watches
getBrandW
getGenderW
getPriceW
setBrandW
setGenderW
setPriceW
Watches (+ 2 o...

TABLA DESCRIPTIVA

JewelryBox.h

Tabla de atributos Private:

bool firstItemStored;	Boolean that states if setItem() shall execute or not

Tabla de atributos Public:

JewelryBox();	Constructur
JewelryBox(const ItemType&);	Copy Constructor
~JewelryBox();	Destructor
void setItem(const ItemType&);	Saves the value of ItemType

BoxInterface.h

Tabla de atributos Public:

~BoxInterface() {}	Destructor
setItem(const ItemType& aItem) = 0;	Copy Constructor
getItem() const = 0;	Getter de data typpe “ItemType”. De setItem()

PlainBox.h

Tabla de atributo Private:

item	ItemTyoe variable

Tabla de atributo Public:

PlainBox();	Constructor
PlainBox(const ItemType&)	Copy Constructor
~PlainBox()	Destructor
setItem(const ItemType&)	Recevives variable of ItemType which is by inheretence.
getItem() const	Gets ItemType data type variables

Jewelry.h

Tabla de atributos Private:

genderJ	Pointer variable for gender
typeJ	Pointer variable for the type of jewelry
metalJ	Pointer variable for the type of metal
weightJ	Integer variable that receives the weight in carats
priceJ	Double variable for price

Tabla de atributos Public:

Jewelry();	Constructor
Jewelry(char*, char*, int, double, char*);	Parametrized constructor
Jewelry(const Jewelry&);	Copy constructor
~Jewelry();	Destructor
setGenderJ(char*)	Receives the genderJ variable value
setTypeJ(char*)	Receives the typeJ variable value
setMetal(char*)	Receives the metalJ variable value
setWeightJ(int)	Receives the weightJ variable value
setPriceJ(double)	Receives the priceJ variable value
getGenderJ() const	Gets gender variable from setGenderJ method
getTypeJ() const	Gets jewelry's type variable from setTypeJ method
getMetalJ() const	Gets metal variable from setMetalJ method
getWeightJ() const	Gets weight variable setWeightJ method
getPriceJ() const	Gets price variable setPriceJ method
ostream& operator<<(ostream&, const Jewelry&)	Jewels Output operator
istream& operator>>(istream&, Jewelry&)	Jewels Input operator

Watch.h

Tabla de atributos Private:

genderW	Variable tipo puntero
brandW	Variable tipo puntero
priceW	Variable tipo puntero

Tabla de atributos Public:

Watches()	Constructor
Watches(char*, char*, double)	Parametrized constructor
Watches(const Watches&)	Copy constructor
~Watches()	Destructor
setGenderW(char*)	Receives the genderW variable value
setBrandW(char*)	Receives the brandW variable value
setPriceW(double)	Receives the priceW variable value
getGenderW() const	Gets genderW variable from setGenderW
getBrandW() const	Gets brand variable from setBrandW
getPriceW() const	Gets price variable setPriceW method
ostream& operator<<(ostream&, const Watches&);	Watches Output operator
istream& operator>>(istream&, Watches&);	Watches Input operator

Main.cpp

```
#include "BoxInterface.h"
#include "JewelryBox.h"
#include "Jewelry.h"
#include "PlainBox.h"
#include "Watches.h"
#include <iostream>
#include <string>

using namespace std;

int main()
{

BoxInterface<Jewelry> *joyas = new JewelryBox <Jewelry>;
BoxInterface<Watches> *relojes = new JewelryBox <Watches>;
Jewelry jewels;
Watches watch;

cin >> jewels;
cout << endl;
cin >> watch;
cout << endl;
joyas->setItem(jewels);
relojes->setItem(watch);
cout << endl;
cout << joyas->getItem() << endl;
cout << relojes->getItem() << endl;
```

```
cout << endl;
delete joyas;
delete relojes;

system("pause");

return 0;

}
```

JewelryBox.h

```
#ifndef _JEWELRY_BOX
#define _JEWELRY_BOX
#include "PlainBox.h"

template <class ItemType>
class JewelryBox : public PlainBox<ItemType>
{
private:
bool firstItemStored;
public:
JewelryBox();
JewelryBox(const ItemType&);
~JewelryBox();
void setItem(const ItemType&);
};

template<class ItemType>
JewelryBox<ItemType>::JewelryBox() :PlainBox<ItemType>()
```

```
{
firstItemStored = false;
}

template<class ItemType>
JewelryBox<ItemType>::JewelryBox(const ItemType& aItem) : PlainBox<ItemType>()
{
PlainBox<ItemType> ::setItem(aItem);
firstItemStored = false;
}

template<class ItemType>
JewelryBox<ItemType>::~JewelryBox()
{
}

template<class ItemType>
void JewelryBox<ItemType>::setItem(const ItemType& aItem)
{
if (!firstItemStored)
{

PlainBox<ItemType> ::setItem(aItem);
firstItemStored = true;

}
}
#endif
```

Jewelry.h

```
#pragma once
#include<iostream>
#include<string>
using namespace std;
class Jewelry {
private:
char* genderJ;
char* typeJ;
char* metalJ;
int weightJ;
double priceJ;

public:

Jewelry();// Default Constructor
Jewelry(char*, char*, int, double, char*);// Constructor with parameters
Jewelry(const Jewelry&);// Copy Constructor
~Jewelry();// Destructor

// Mutators
void setGenderJ(char*);
void setTypeJ(char*);
void setMetalJ(char*);
void setWeightJ(int);
void setPriceJ(double);

// Accessors
char* getGenderJ() const;
char* getTypeJ() const;
```

```
char* getMetalJ() const;
int getWeightJ() const;
double getPriceJ() const;

friend ostream& operator<<(ostream&, const Jewelry&);
friend istream& operator>>(istream&, Jewelry&);
};
```

Watches.h

```
#pragma once
#include <iostream>
#include <string>

using namespace std;

class Watches
{
private:
char* genderW;
char* brandW;
double priceW;
public:
// Default Constructor
Watches();
// Constructor with parameters
Watches(char*, char*, double);
// Copy Constructor
Watches(const Watches&);
// Destructor
~Watches();
```

```
// Mutators
void setGenderW(char*);
void setBrandW(char*);
void setPriceW(double);
// Accessors
char* getGenderW() const;
char* getBrandW() const;
double getPriceW() const;
friend ostream& operator<<(ostream&, const Watches&);
friend istream& operator>>(istream&, Watches&);
};
```

Jewelry.cpp

```
#include "Jewelry.h"

Jewelry::Jewelry()
{
char tempGTM[20] = " ";
setGenderJ(tempGTM);
setTypeJ(tempGTM);
setWeightJ(0);
setPriceJ(0);
setMetal(tempGTM);
}

Jewelry::Jewelry(char* aGender, char* aType, int aWeight, double aPrice, char* aMetal)
{
setGenderJ(aGender);
setTypeJ(aType);
```

```
setWeightJ(aWeight);
setPriceJ(aPrice);
setMetal(aMetal);
}

Jewelry::Jewelry(const Jewelry& obj)
{
setGenderJ(obj.getGenderJ());
setTypeJ(obj.getTypeJ());
setWeightJ(obj.getWeightJ());
setPriceJ(obj.getPriceJ());
setMetal(obj.getMetalJ());
}

Jewelry::~Jewelry()
{
delete [] gender;
delete [] type;
delete [] metal;
}

void Jewelry::setGenderJ(char* aGender)
{
gender = new char[strlen(aGender) + 1];
strcpy_s(gender, strlen(aGender) + 1, aGender);
}

void Jewelry::setTypeJ(char* aType)
{
```

```
type = new char[strlen(aType) + 1];
strcpy_s(type, strlen(aType) + 1, aType);
}

void Jewelry::setWeightJ(int aWeight)
{
weight = aWeight;
}

void Jewelry::setPriceJ(double aPrice)
{
price = aPrice;
}

void Jewelry::setMetal(char* aMetal)
{
metal = new char[strlen(aMetal) + 1];
strcpy_s(metal, strlen(aMetal) + 1, aMetal);
}

char* Jewelry::getGenderJ() const
{
return gender;
}

char* Jewelry::getTypeJ() const
{
return type;
}
```

```
int Jewelry::getWeightJ() const
{
return weight;
}

double Jewelry::getPriceJ() const
{
return price;
}

char* Jewelry::getMetalJ() const
{
return metal;
}

ostream& operator<<(ostream& strm, const Jewelry& obj)
{
strm << "La joya tiene las siguientes especificaciones:"
 << "\n Gender:            " << obj.getGenderJ()
 << "\n Jewelry Type:      " << obj.getTypeJ()
 << "\n Gold Metal Weight:  " << obj.getWeightJ()
 << "\n Price:           $" << obj.getPriceJ()
    << "\n Metal Type:        " << obj.getMetalJ();

return strm;
}

istream& operator>>(istream& strm, Jewelry& obj)
```

```
{
cout << "Escoja el genero para quien sera la joya - MUJER, VARON, NINO: ";
strm >> obj.gender;
cout << "Escoja el tipo de joya - Opciones: ANILLOS, CADENAS, BRAZALETES, ARETES: ";
strm >> obj.type;
cout << "Especifique los KILATES de oro de la joya: ";
strm >> obj.weight;
cout << "Entre el precio: $";
strm >> obj.price;
cout << "Entre el tipo de metal que sera la joya: ";
strm >> obj.metal;

return strm;
}
```

Watches.cpp

```
#include "Watches.h"

Watches::Watches()
{
char temp[10] = " ";
setGenderW(temp);
setBrandW(temp);
setPriceW(0);
}

Watches::Watches(char* genderW, char* brandW, double priceW)
{
setGenderW(genderW);
setBrandW(brandW);
```

```
setPriceW(priceW);
}

Watches::Watches(const Watches& obj)
{
setGenderW(obj.getGenderW());
setBrandW(obj.getBrandW());
setPriceW(obj.getPriceW());
}

Watches::~Watches()
{
delete [] genderW;
delete [] brandW;
}

void Watches::setGenderW(char* aGenderW)
{
genderW = new char[strlen(aGenderW) + 1];
strcpy_s(genderW, strlen(aGenderW) + 1, aGenderW);
}

void Watches::setBrandW(char* aBrandW)
{
brandW = new char[strlen(aBrandW) + 1];
strcpy_s(brandW, strlen(aBrandW) + 1, aBrandW);
}

void Watches::setPriceW(double aPriceW)
```

```
{
priceW = aPriceW;
}

char* Watches::getGenderW() const
{
return genderW;
}

char* Watches::getBrandW() const
{
return brandW;
}

double Watches::getPriceW() const
{
return priceW;
}

ostream& operator<<(ostream& strm, const Watches& obj)
{
strm << "\nEl reloj que ha escojido tiene estas especificaciones:";
strm << "\n   Genero:  " << obj.getGenderW();
strm << "\n   Brand:   " << obj.getBrandW();
strm << "\n   Precio: $" << obj.getPriceW() << endl;

return strm;
}
```

```
istream& operator>>(istream& strm, Watches& obj)

{

cout << "Escoja el genero para quien sera el reloj MUJER, VARON, NINO: ";

strm >> obj.genderW;

cout << "Especifique la marca del reloj que busca. Ejemplos Ferrary, COACH, Casio, Bilova, Citizen, Boos, etc. : ";

strm >> obj.brandW;

cout << "Por favor, entre precio: $";

strm >> obj.priceW;


return strm;

}
```

OUTPUT

Escoja el genero para quien sera la joya - MUJER, VARON, NINO: NINO

Escoja el tipo de joya - Opciones: ANILLOS, CADENAS, BRAZALETES, ARETES: ARETES

Especifique los KILATES de oro de la joya: 12

Entre el precio: $123

Entre el tipo de metal que sera la joya: ORO

Escoja el genero para quien sera el reloj MUJER, VARON, NINO: VARON

Especifique la marca del reloj que busca. Ejemplos Ferrary, COACH, Casio, Bilova, Citizen, Boos, etc. : COACH

Por favor, entre precio: $1223

La joya tiene las siguientes especificaciones:

Gender: NINO

Jewelry Type: ARETES

Gold Metal Weight: 12K

Price: $123

Metal Type: ORO

El reloj que ha escojido tiene estas especificaciones:

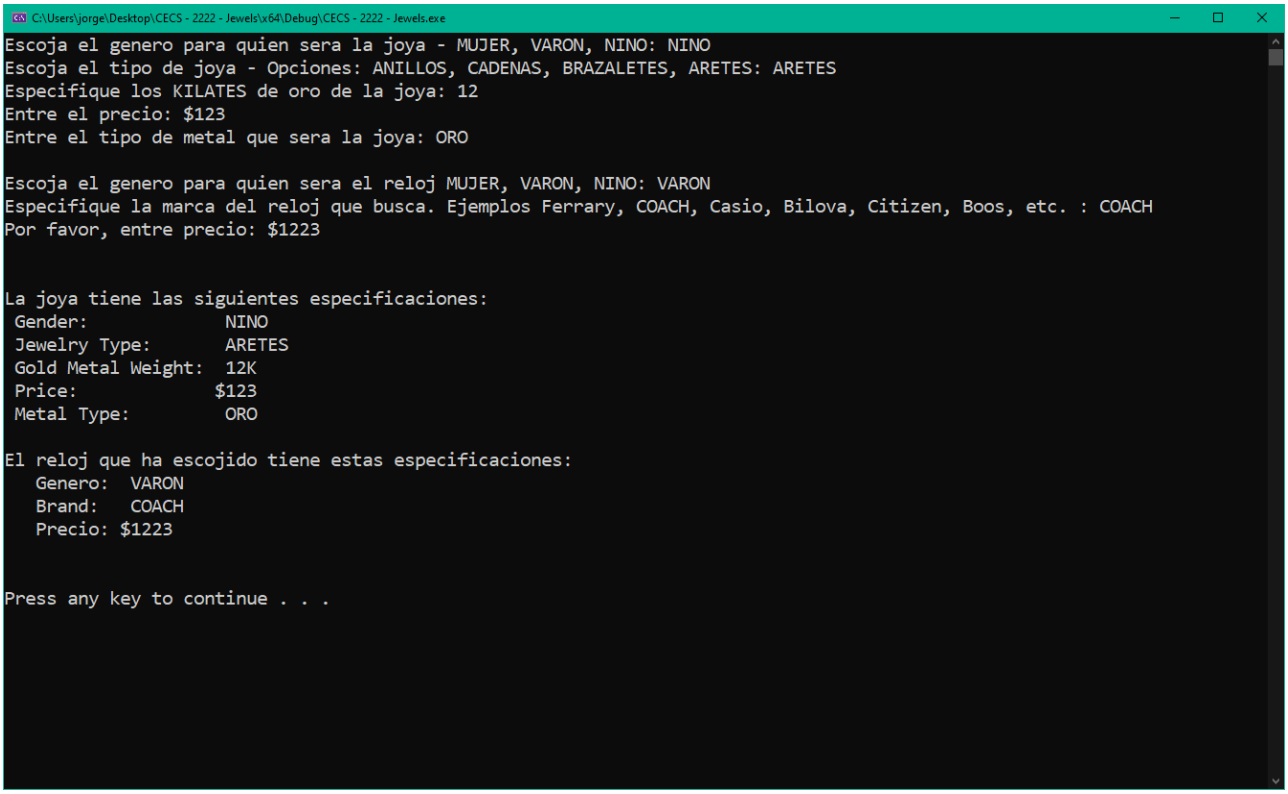
Genero: VARON

Brand: COACH

Precio: $1223

Press any key to continue . . .

PROMPT


C:\Users\jorge\Desktop\CECS - 2222 - Jewels\x64\Debug\CECS - 2222 - Jewels.exe
Escoja el genero para quien sera la joya - MUJER, VARON, NINO: NINO
Escoja el tipo de joya - Opciones: ANILLOS, CADENAS, BRAZALETES, ARETES: ARETES
Especifique los KILATES de oro de la joya: 12
Entre el precio: $123
Entre el tipo de metal que sera la joya: ORO
Escoja el genero para quien sera el reloj MUJER, VARON, NINO: VARON
Especifique la marca del reloj que busca. Ejemplos Ferrary, COACH, Casio, Bilova, Citizen, Boos, etc. : COACH
Por favor, entre precio: $1223
La joya tiene las siguientes especificaciones:
Gender: NINO
Jewelry Type: ARETES
Gold Metal Weight: 12K
Price: $123
Metal Type: ORO
El reloj que ha escojido tiene estas especificaciones:
Genero: VARON
Brand: COACH
Precio: $1223
Press any key to continue . . .