

Programming Fundamentals – ENSF 337

Lab 7

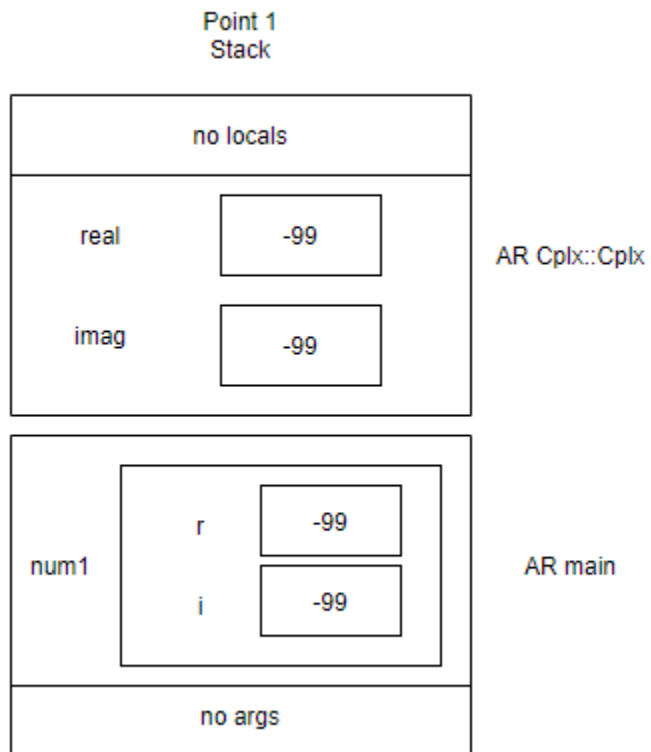
M. Moussavi

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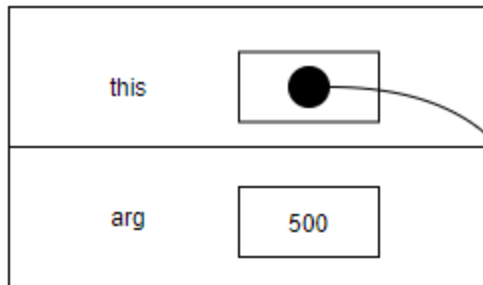
B01

Submitted on November 17, 2021

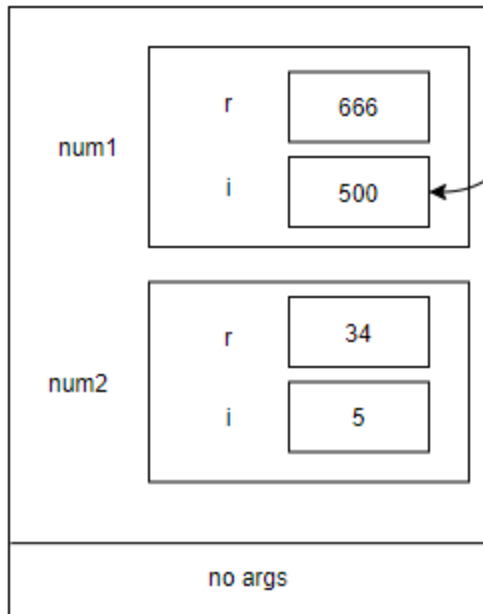
Exercise A



Point 2
Stack



AR Cplx::setImaginaryPart



AR main

Exercise C: Designing a C++ Class

Source Code is too long to reasonably put in document, it is in ExC folder.

Terminal Output:

```
Object t1 is created. Expected time is: 00:00:00
00:00:00
Object t1 incremented by 86400 seconds. Expected time is: 00:00:00
00:00:00
Object t2 is created. Expected time is: 00:00:05
00:00:05
Object t2 decremented by 6 seconds. Expected time is: 23:59:59
23:59:59
After setting t1's hour to 21. Expected time is: 21:00:00
21:00:00
Setting t1's hour to 60 (invalid value). Expected time is: 21:00:00
21:00:00
Setting t2's minute to 20. Expected time is: 23:20:59
23:20:59
Setting t2's second to 50. Expected time is 23:20:50
23:20:50
Adding 2350 seconds to t2. Expected time is: 00:00:00
00:00:00
Adding 72000 seconds to t2. Expected time is: 20:00:00
20:00:00
Adding 216000 seconds to t2. Expected time is: 08:00:00
00:00:00
Object t3 is created. Expected time is: 00:00:00
00:00:00
Adding 1 second to clock t3. Expected time is: 00:00:01
00:00:01
After calling decrement for t3. Expected time is: 00:00:00
00:00:00
After incrementing t3 by 86400 seconds. Expected time is: 00:00:00
00:00:00
After decrementing t3 by 86401 seconds. Expected time is: 23:59:59
23:59:59
After decrementing t3 by 864010 seconds. Expected time is: 23:59:49
23:59:49
t4 is created with invalid value (25 for hour). Expected to show: 00:00:00
00:00:00
t5 is created with invalid value (-8 for minute). Expected to show: 00:00:00
00:00:00
t6 is created with invalid value (61 for second). Expected to show: 00:00:00
00:00:00
t7 is created with invalid value (negative value). Expected to show: 00:00:00
00:00:00
```

Could not get t2 to display correctly when adding 216000 seconds. \

Exercise D: A Simple Class Vector and Copying Object

Source code, only showing the member functions we were assigned to complete.

simpleVector.cpp

```
void SimpleVector::push_back(TYPE val) {

    if (sizeM < capacityM){
        storageM[sizeM] = val;
        sizeM += 1;
    }
    else if(sizeM == capacityM){
        capacityM *= 2;
        SimpleVector temp = SimpleVector(storageM, capacityM);
        temp.storageM[sizeM] = val;
        temp.sizeM = sizeM+1;
        delete[] storageM;
        storageM = new TYPE[capacityM];
        assert(storageM != 0);
        for (int i = 0; i < capacityM; i++)
            storageM[i] = temp.storageM[i];
    }
}

SimpleVector::SimpleVector(const SimpleVector& source) {
    sizeM = source.sizeM;
    capacityM = source.capacityM;
    storageM = new TYPE[capacityM];
    assert(storageM != 0);
    for (int i = 0; i < sizeM; i++){
        storageM[i] = source.storageM[i];
    }
}

SimpleVector& SimpleVector::operator= (const SimpleVector& rhs) {
    if (this != &rhs){
        delete[] storageM;
        sizeM = rhs.sizeM;
        capacityM = rhs.capacityM;
        storageM = new TYPE[rhs.capacityM];
        assert (storageM != 0);
        for (int i = 0; i < sizeM; i++){
            storageM[i] = rhs.storageM[i];
        }
    }
    return *this;
}
```

Terminal Output:

```
Object v1 is expected to display: 45 69 12
45 69 12
Object v2 is expected to diaplay: 3000 6000 7000 8000
3000 6000 7000 8000

After two calls to at v1 is expected to display: 1000 2000 12:
1000 2000 12

v2 expected to display: 3000 6000 7000 8000 21 28
3000 6000 7000 8000 28

After copy v2 is expected to display: 1000 2000 12
1000 2000 12

v1 is expected to display: 1000 2000 8000
1000 2000 8000

v3 is expected to diplay: 1000 2000 12
1000 2000 12

v2 is expected to display: -333 2000 12
-333 2000 12

v4 is expected to diplay: 1000 2000 8000
1000 2000 8000

v1 after self-copy is expected to diplay: -1000 2000 8000
-1000 2000 8000

v1 after chain-copy is expected to diplay: 1000 2000 12
1000 2000 12

v2 after chain-copy is expected to diplay: 1000 2000 12
1000 2000 12
```

Could not get the second display of v2 to display properly.

Exercise E:

Did not have time to finish :(