# SAVITCH ABSOLUTE C++

# Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Term # \_\_\_\_

**Homework 13 - On Lecture 16 – Exception Handling**

**(100 points) Hours:**

**The homework is to be turned in as a *PAPER AND PENCIL i.e., HANDWRITTEN ANSWER ONLY!(with your terminal #!)* in the first ten minutes of the due date class.**

**Also an implementation in Visual Studio is ALSO required, thus you are to submit the ZIPPED project to BB and download it in 232 PGH the first 10 minutes of class. Hardcopy with screenshots of the running program and the SOURCE CODE are also needed.**

**TURNING IN THE HOMEWORK INSTRUCTIONS will be PENALTY OF -10 points.**

**I UNDERSTAND THAT TURNING ANOTHER’s WORK IN is CHEATING.**

**I UNDERSTAND THAT ANY KIND OF DISSEMINATION of this WORK is CHEATING.**

**I CERTIFY THAT THE HOMEWORKs SOLUTIONs ARE MY OWN WORK!**

**?**

**X**

**V**

**SIGNATURE:**

**TA check, is Homework13.doc & Homework13.zip**

**in BB?**

**HOMEWORK CHECKLIST (YOU MUST GRADE YOURSELF!):**

1. **DID TURN IN HOMEWORK INSTRUCTIONS? \* -10 points**
2. **1.? 35 points**
3. **2.? H & E (attach to BB) – WORD ONLY 65 points**
4. **Homework13 C++.zip NOT submitted to BB? \* -55 points**
5. **Homework13 C++.zip NOT running in class? \* -55 points**

**\* If NOT, do not enter anything in the box!**

TA **grade or check**

**PLEASE ENTER YOUR GRADE IN THIS BOX:**

**By Hand?**

**Screenshot?**

# I understand that if the .zip file is NOT in BB and I did not check the BOX, I will get a ZERO for the Homework!

**1.** (35 pts)(**BY HAND**):

a. (5 pts)What output is produced by the following code?

int waitTime = 46;

try

{

out << " Try block entered.\ n";

if ( waitTime > 30)

throw waitTime;

cout << " Leaving try block.\ n";

}

catch( int thrownValue)

{

cout << " Exception thrown with\ n" << " waitTime equal to " <<

thrownValue << endl;

}

cout << " After catch block" << endl;.

**ANSWER:**

b. (5 pts) What would be the output produced by the code in Self- Test Exercise 1 if we made the following change? Change the line

int waitTime = 46;

to

int waitTime = 12;

**ANSWER:**

c. (5 pts)What happens when a throw statement is executed? ( Tell what happens in general, not simply what happens in the code in Self- Test Exercise 1 or some other sample code.)

**ANSWER:**

d. (5 pts)What is the output produced by the following program?

# include < iostream>

using std:: cout;

void sampleFunction( double test) throw ( int);

int main( )

{

try

{

cout << " Trying.\ n";

sampleFunction( 98.6);

cout << " Trying after call.\ n";

}

catch( int)

{

cout << " Catching.\ n";

}

cout << " End program.\ n";

return 0;

}

void sampleFunction( double test) throw ( int)

{

cout << " Starting sampleFunction.\ n";

if ( test < 100)

throw 42;

}

**ANSWER:**

e. (5 pts)What is the output produced by the program in **d.** when the following change is made to the program? Change

sampleFunction( 98.6);

in the try block to

sampleFunction( 212);

**ANSWER:**

f. (5 pts)What happens when an exception is never caught?

**ANSWER:**

g. (5 pts)Can you nest a try block inside another try block?

**ANSWER:**

**2.** (65 pts) **UML Class Diagram** (**MICROSOFT WORD; Textual Analysis – TA Cut&Paste&Rearrange**).

A function that returns a special error code is usually better accomplished throwing an exception instead. The following Class maintains an account balance.

Account

class Account

{

private:

Account: 1: balance: double

double balance;

public:

Account()

{

balance = 0;

}

Account: 1: Account(double)

Account( double initialDeposit)

{

balance = initialDeposit;

}

Account: 2: getBalance(): double

double getBalance()

{

return balance;

}

// returns new balance or - 1 if error

double deposit( double amount)

Account: 3: deposit(double): double

{

if ( amount > 0)

balance += amount;

else

return - 1; // Code indicating error

return balance;

}

// returns new balance or - 1 if invalid amount

double withdraw( double amount)

Account: 4: withdraw(double): double

{

if (( amount > balance) || ( amount < 0))

return - 1;

else

balance -= amount;

return balance;

}

};

Rewrite the Class so that it throws appropriate exceptions instead of returning - 1 as an error code. Write test code that attempts to withdraw and deposit invalid amounts and catches the exceptions that are thrown.

1. (10 pts) **OOA & OOD: Draw the UML Class Diagram.**

**ANSWER:**

|  |
| --- |
| Account |
| - balance: double //1 |
| **+**  Account(double) //1  **+**  getBalance(): double //2  **+**  deposit(double): double //3  **+**  withdraw(double): double //4 |

1. (55 pts) **Implementation: Visual Studio 2010 AS HOMEWORK13 build and run, Source Code and Screenshot. Submit zipped project to BB!**

[**http://media.pearsoncmg.com/aw/aw\_savitch\_abc\_4/videos/video18\_1/video.html**](http://media.pearsoncmg.com/aw/aw_savitch_abc_4/videos/video18_1/video.html)

**ANSWER:**



