Ch.3-Ch.6 Midterm

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Terms in this set (197)

Loops are used to implement selection in C++.	False
Loops are used to implement iteration in C++.	True
An unguarded loop is also known as a test-at-the-top loop.	False
A guarded loop is also known as a test-at-the-top loop	True
An unguarded loop is also known as a test-at-the-bottom loop.	True
A guarded loop is also known as a test-at-the-bottom loop.	False
In an unguarded loop, the loop actions are always executed at least once.	True

Which of these is a flow-of-control statement?	for(auto e : s) ...
	
	if(x < 3) ... else ...
	
	while(x < 3)...

How many times is this loop entered? (That is, how many times is i printed?) for(int i = 1; i < 10; i++) cout << i; cout << endl;	9
How many times is this loop entered? (That is, how many times is i printed?) for(int i = 0; i < 10; i++) cout << i; cout << endl;	10
What kind of error is this? terminate called after throwing an instance of 'std::out_of_range'	Runtime error (throws exception when running)

What prints here?
 	
int i = 5;
while (i) cout << i--;
cout << endl;
	54321

Match each item with the correct statement below. Object file Interface file Client file Implementation file	digits.o digits.h digit tester.cpp digits.cpp
Default arguments may only be used with reference parameters.	False

What is the output of the following?
 	
int i = 1;
int sum = 0;
while (i <= 11)
{
sum = sum + 1;
i++;
}
cout << "The value of sum is " << sum;
	The value of sum is 66

Parameter names are optional in the function prototype.	True
Match each item with the correct statement below. Executable Library file Project file Implementation file	digit-tester libdigits.a makefile digits.cpp

What is the output of the following?
 	
int i = 1;
while (i < 20)
{
cout << i << " ";
i = i + 2;
if(i == 15)
{
i = 19;
}
}
	1 3 5 7 9 11 13 19

The getline() function is a member function in the string class.	False
When using cat with redirection, the program only stops running when you press Control+D.	False

What does this code do?
 	
ifstream in("temp.txt");
string x;
int i{0};
while (getline(in, x)) i++;
cout << i << endl;
	counts the number of lines in the file

Assume you have a char variable named ch. How do you write one character to output?	cout.put(ch);

What does this code do?
 	
ifstream in("temp.txt");
char x;
int i{0{;
while (getline(in, x)) i++;
cout << i << endl;
	NOT counts the number of characters
	???

To use a disk file as a data stream source or sink, use the <ifstream> header	False
Counting the number of words in input by counting word transitions is an example of a state filter.	True
The redirection pipe symbol is a pair of vertical bars (II).	False
Which are the two major categories of loops?	definite loops indefinite loops
Which line represents the intentional bounds in this loop? 1. string s("Hello CS 150"); 2. while (s.size()) 3. { 4. if (s.at(0) == 'C') break; 5. s = s.substr(1); 6. } 7. cout << s << endl;	4
Using the loop-building strategy from the lessons, which of these are part of the loop mechanics?	advancing the loop loop bounds bounds precondition
Below is the illustration from the loop building strategy. The highlighted lines represent: Set counter to 0	goal precondition
Below is the illustration from the loop building strategy. The highlighted lines represent: Create the variable current-character as a character Place the first character in str into current-character	bounds precondition
A loop that reads data until some special value is found is called a:	sentinel loop

What is the output of the following?
 	
int i = 1;
while (i <= 10)
{
cout << "Inside the while loop" << endl;
i = i * 11;
}
	"Inside the while loop" will be displayed only once.

Which of these are dependencies? EXE=digit-tester OBJS=client.o digits.o $(EXE): $(OBJS) $(CXX) $(CXXFLAGS) $(OBJS) -o $(EXE)	client.o digits.o
Which of these are not ways that functions may be overloaded?	different parameter names different function name different return type
Implementation files must explicitly qualify each name from the standard library with std::	False
Function overloading allows you to write several different functions that have the same name.	True

What is the output of the following?
 	
int i = 0;
while (i != 11)
{
cout << i << " ";
i = i + 2;
}
	0 2 4 6 8 10 12 14 .... (infinite loop)

Header files may contain the statement using namespace std;	False
Which line runs the dwk program and gets its input from a file named y.data?	./dwk < y.data
Calling cout.put(c) converts its argument, c, to a character.	True
A process filter learns something about the stream by examining characters.	False
This command: cat < nofile 2> /dev/null will print an error message on the screen if nofile does not exist.	False
This command: cat < nofile > /dev/null will print an error message on the screen if nofile does not exist.	True
Which command displays a the names of the files in a folder in reverse order?	...
In the C++ stream hierarchy, the base class of the stringstream class is:	iostream
The getline() function is a member function in the istream class.	False
A process filter does something to the characters it encounters.	True

What prints?
 	
string str = "Hello";
for (auto i = 0, len = str.size(); i < len; i++)
cout << str.at(i);
	Does not compile

The highlighted section below illustrates: If the variable str has any characters then	a loop guard
Match each item with the correct statement below. May not repeat its actions at all Repeats its actions at least once Test for the occurrence of a particular event Conditions under which a loop will repeat its actions	guarded loop unguarded loop indefinite loop loop bounds
In the classic for loop, which portion is used to create the loop control variable?	initialization statement

How many lines of output are printed?
 	
int i = 0;
while (i != 9)
{
cout << "Loop Execution" << endl;
i++;
}
	9

What prints here?
 	
int i = 5;
while (--i) cout << i;
cout << endl;
	4321

Examine this code. Which is the best prototype?
 	
string s = "dog";
upper(s);
cout << s << endl; //DOG
	string upper(string&)

Header guards:	end with the directive #endif go in every interface file start with the directive #ifndef includes the directive #define
Arguments passed to a function that has a constant reference parameter must be:	either lvalues or rvalues are fine
Which of these may go into a header file?	function prototypes constant definitions

What prints here?
 	
auto a = 2;
switch (a)
{
case 1: cout << "1"; break;
case 2: cout << "2"; break;
default: cout << "3";
}
cout << endl;
	2

Which command sorts the lines in input.txt and stores the sorted output in a new file named sorted.txt?	cat < input.txt | sort > sorted.txt
If an input stream's file is missing when you try to open it, its fail() member function returns true.	true

Complete the following code in the upper filter program.
 	
char ch;
while (cin.get(ch))
cout.put(___);
	toupper(ch)

At the lowest level, all input and output is a stream of bytes flowing through your program.	True

Examine the code below and match the statements following it.
 	
int mystery1(int n, int a, int b) {
if (n == 0) return a;
if (n == 1) return b;
return mystery1(n - 1, b, a + b);
}
 	
int mystery2(int n) {
return mystery1(n, 0, 1);
}
 	
mystery1 is a recursive wrapper
 	
The algorithm implemented is
 	
mystery2 has a stack overflow for some inputs
if (n == 1) is a base case
	False
	
	Fibonacci
	
	True
	
	True

Which line runs the dd program and sends its errors to file named z.data?	./dd 2> z.data
Before you run your program, asking the operating system to connect standard output to a file is called redirection.	True
Assuming that you need to write a recursive function calc_prod(int n) to calculate the product of the first n integers, which of the following would be a correct way to simplify the input for the recursive call?	Call calc_prod(n - 1) and multiply by n.
Which line represents the necessary bounds in this loop? 1. string s("Hello CS 150"); 2. while (s.size()) 3. { 4. if (s.at(0) == 'C') break; 5. s = s.substr(1); 6. } 7. cout << s << endl;	2

The highlighted selection below illustrates: While more-characters	a necessary condition
Which of these are unguarded loops?	do-while
Loop bounds used when reading files or processing network data.	data bounds
Loop bounds used when searching through input.	sentinel bounds
Overloaded functions have the same name but different parameter types.	True
Below are terms connected with function overloading resolution. Match each item with the correct statement below. When more than one match is found for the proffered arguments. A group of functions with the same name. A group of functions that have the same name and the correct number of parameters. When no match is found for the proffered arguments	ambiguity candidate set viable set empty set

Assume that the input is 4 4 3 2 5. What will print?
int i = 1;
do
{
int n;
cin >> n;
i++;
}
while (n % 2);
cout << i << endl;
	Does not compile

What prints?
 	
void fn(int, double, double&) { cout << "A" << endl; }
void fn(int, int, double&) { cout << "B" << endl; }
void fn(int, int, double) { cout << "C" << endl; }
void fn(int, int, int) { cout << "D" << endl; }
 	
int main()
{
fn(1, 2, 3.5);
}
	NOT ambiguous
	NOT B

Default arguments appear only in the function implementation.	False

To allow f() to accept the argument passed here, the parameter str should be declared as:
 	
void f(. . . str);
int main()
{
f("hello");
}
	const string&

What Java and other OO languages call a superclass, C++ calls a _____.	base class

Which command counts the number of lines (only) in alice.txt?	wc -l < alice.txt ? ?

What is the value of r("hello")?
 	
string r(const string& s)
{
if (s.size() < 2) return s; return
s.substr(0, 1) + "*" + r(s.substr(1));
}
	"h**ell**o"

What is the value of r(12777)?
 	
int r(int n)
{
if (0 == n) return 0;
int x = n % 10 == 7; // 0 or 1
return x + r(n / 10);
}
	3

Stream parameters should always be passed to functions by const reference.	False
Which line runs the dmm program and adds its output to a file named x.data?	./dmm >> x.data
A state filter does something to the characters it encounters.	False
In a guarded loop, the loop actions are always executed at least once.	False
Match each item with the correct question below. What must I change in the test to go to the next iteration? What must I do to enter the loop? Has my loop reached its goal? Can my loop be entered at all?	advance the loop bounds precondition loop postcondition loop guards
Which of these are guarded loops?	while for
In the classic for loop, which portion of code is executed after the last statement in the loop body?	update expression
This idiomatic pattern is used to count from one value to another. for (int i = 1; i <= 10; i++) cout << i; cout << endl;	True
Below is the illustration from the loop building strategy. The highlighted lines represent: While more-characters and current-character not a period	loop bounds
In the classic for loop, loop control variables going from 0 to less-than n are said to employ:	asymmetric bounds

Parameter names are optional in the function definition.	False
Below are terms connected with function overloading resolution. Match each item with the correct statement below. A function where an argument is converted to match a parameter A function where each argument is the same type as the corresponding parameter. A group of functions that have the same name and the correct number of parameters. When no match is found for the proffered arguments	best match exact matches viable set empty set
An undefined error message is a linker error.	True

What prints?
 	
void fn(int, double, double&) { cout << "A" << endl; }
void fn(int, int, double&) { cout << "B" << endl; }
void fn(int, int, double) { cout << "C" << endl; }
void fn(int, int, int) { cout << "D" << endl; }
 	
int main()
{
auto n = 3.5;
fn(1, 2, n);
}
	Syntax error: ambiguous

What prints here?
 	
int i = 5;
while (i); cout << i--;
cout << endl;
	Infinite loop

In a while loop, (condition) is followed by a semicolon.	False

What prints here?
 	
auto a = 3, b = 3;
cout << a == b ? "panda" : "tiger" << endl;
	Does not compile

The statement x = cin.get(ch) returns the next character from input and stores it in x.	False
Match each redirection symbol with the description below. Each line starts with a built-in command Append output to a file named z Discard both output and errors Read the input from the file named z Send the output to the input of the program named z	pwd >> z rm x > /dev/null 2>&1 cat < z date I z
cat < f.txt > f.txt makes a copy of f.txt.	False

What is the value of r("xxhixx")?
 	
int r(const string& s)
{
if (size))
return (s.at(0) == 'x') + r(s.substr(1));
return 0;
}
	4

To use a disk file as a data stream source or sink, use the <ifstream> header	False
Which of these are not state filters?	search for a particular value in a stream copy a file translating data from one form to another
Calling cout.put("A") is illegal. Your code will not compile.	True

Examine the code below and match the statements following it.
 	
int mystery3(int n) {
if (n < 2) return 1;
return n * mystery3(n - 1);
}
 	
mystery3 has a stack overflow for some numbers.
 	
mystery3 correctly implements its aglorithm
 	
if (n <2) is a...
 	
mystery3 is efficient
	False
	
	True
	
	base case
	
	True

Below is the illustration from the loop building strategy. The highlighted lines represent: Store the next character from str in current-character	advancing the loop
This loop uses asymmetric bounds. for(int i = 1; i<= 10; i++) cout << i; cout<<endl;	False

What prints here?
 	
int i = 5;
while (i--) cout << i;
cout << endl;
	43210

In a guarded loop, the loop actions may never be executed.	True
This idiomatic pattern is used to count from one value to another. for (int i = 1; i < 10; i++) cout << i; cout << endl;	False

Which line in the function "skeleton" below contains an error?
 	
#include "digits.h" // 1.
int firstDigit(int n) // 2.
{ // 3.
return 0; // 4.
} // 5.
	None of these

An undeclared error message is a compiler error.	True
Which of these documentation tags are used in a file comment?	@author @version

How many lines of output are printed?
 	
int count = 0;
while (count != 9)
{
cout << "Monster Mash" << endl;
if ((count % 2) == 0)
{
count++;
}
else
{
count--;
}
}
	Infinite

#ifndef EXAMPLE_H
#define EXAMPLE_H
#include <string>
 	
std::string f1(int a);
int f2(double);
void f3(std::string& s, int n);
double f4();
 	
#endif
	None of these

The file expenses.txt contains the line: Hotel, 3 nights. $ 1,750.25. What prints?
 	
ifstream in("expenses.txt");
char c;
while (in.get(c))
{
if (isdigit(c)) {
in.unget();
int n;
in >> n;
cout << n << 'x';
}
}
	3x1x750x25x

Filter programs read from input files and write to output files.	False
The cout object is an instance of the ofstream class.	False
In C++, the standard stream stderr is used to initialize the cout object.	False
When running a filter program, you can send all output from cout to a file using the > redirection symbol.	True
Which line runs a.out getting its input from in.txt and appending its output to the file out.txt?	./a.out > in.txt >> out.txt

Match the following code the the answers below.
 	
template <typename T, typename U>
U pickle(T& a, const U& b) {
a += b;
return b;
}
 	
int main()
{
int x = 42;
auto a = pickle(x, 4.5);
cout << a << endl;
cout << x << endl;
}
 	
Inside main, the variable a is type:
 	
Inside main, the value printed for a is:
 	
Inside main, the value printed for x is:
	double
	
	4.5
	
	46

The file temp.txt contains "Orange Coast College". What prints?
 	
ifstream in("temp.txt");
char c;
while (in.get(c))
{
if (isupper(c))
cout << toupper(c);
}
	OCC

Below is the illustration from the loop building strategy. The highlighted lines represent:
 	
If current=character is a period then
add one to the counter to account for the period.
else
set counter to -2
	loop postcondition

In the classic for loop, which portion of code is analogous to an if statement?	condition expression
In the classic for loop, which portion of code is analogous to an if statement?	condition expression
Which of these are indefinite loops?	limit loops sentinel loops data loops

Examine this code. Which is the best prototype?
 	
string s = "dog";
cout << upper(s) << endl; // DOG
cout << s << endl; // dog
	string upper(const string&)

An incomplete, yet compilable, linkable and executable function is called a _____ ?	stub

What prints here?
 	
auto a = 'A';
switch (a)
{
case 64: cout << "?";
case 65: cout << "A";
case 66: cout << "B";
}
cout << endl;
	AB

Match each item with the correct statement below. Meaning of value returned from a function Begin a block of source code Information about the library Name and meaning for a parameter	@return @code @version @param

What prints here?
 	
auto a = 3, b = 3;
cout << (a != b ? "panda": a % 2 ? "stork": "tiger") << endl;
	stork

What is the output of the following?
 	
string s = "abcde";
int i = 1;
while (i < 5)
{
cout << s.substr (i, 1);
i++;
}
	bcde

Arguments passed to a function that has a non-constant reference parameter must be:	lvalues

What prints here?
 	
auto a = 1;
switch (a)
{
case 1: cout << "1";
case 2: cout << "2";
case 3:
}
cout << endl;
	Does not compile

When using cin >> ch; to read a character, leading whitespace is not skipped.	False
Unformatted I/O means that you read and write data character-by-character.	True
Unformatted I/O means that you read and write data line-by-line	False
When writing a function with stream parameters, always use the most general type of stream that meets the specification.	True

Match each item with the correct statement below. Keeps processing input until a particular value is found in input Keeps processing until the output gets no closer to the answer Repeats its actions a fixed number of times Keeps processing until the input device signals that it is finished	sentinel loop limit loop definite loop data loop
Match each item with the correct statement below. Actions that occur after the loop is complete Actions occurring inside the loop's body Actions that occur before the loop is encountered A test the determines if the loop should be entered	postcondition operation precondition bounds
Loop bounds often used in scientific and mathematical applications.	limit bounds
In the classic for loop, which portion is used to create the loop control variable?	initialization statement

Which prototypes in the following header file contain errors?
 	
#ifndef EXAMPLE_H
#define EXAMPLE_H
#include <string>
 	
string f1(int a);
int f2(double);
void f3(std::string& s, int n);
double f4();
 	
#endif
	f1

Default arguments allow you to write several different functions that have the same name.	False

What is the output of the following?
 	
int i 1 =1;
while (i != 9)
{
cout << i << " ";
i++;
if (i = 9)
{
cout << "End";
}
}
	1 End

What kind of error is this? ex1.cpp:6:5: error: use of undeclared identifier 'a' a = 4; ^	Compiler error (something is missing when compiling)

auto a = '1';
switch (a)
{
case 1: cout << "1"; break;
case 2: cout << "2"; break;
default: cout << "3";
}
cout << endl;
	3

Infinite recursion can lead to an error known as	stack overflow
The highlighted section below illustrates: current-character not a period	an intentional condition
The highlighted section below illustrates: Add one to (or increment) the counter variable	goal operation
An undeclared error message is a linker error	False

Given the overloaded functions prototypes and the variable definition below, which of the function calls will fail to compile?
 	
int f(int&);
int f(const int&);
int f(int, int);
int a = 7;
	None of these fail to compile

Given the overloaded functions prototypes and the variable definition below, which of the function calls will fail to compile?
 	
int f(int&);
int f(int);
int f(int, int);
int a = 7;
	f(a);

Which of these prototypes is the best one to use in this circumstance?
 	
int main()
{
string str{"To be or not to be."};
cout << "Most common letter is "
<< mostCommon(str) << endl;
}
	char mostCommon(const string&);

Which of these prototypes is the best one to use in this circumstance?
 	
int main()
{
string str{"TO BE OR NOT TO BE"};
properCase(str);
cout << str << endl;
}
	void properCase(string&);

What prints here?
 	
double a = 1;
switch (a)
{
case 1: cout << "1";
case 2: cout << "2";
}
cout << endl;
	Does not compile

Redirect standard error using the symbol 1> like this:	False
When writing a function with stream parameters, always use the most specific type of stream that meets the specification.	False
Assume you have a char variable named ch. How do you look ahead before reading a character?	cin.peek();
Which of the following is a key requirement to ensure that recursion is successful?	Every recursive call must simplify the computation in some way.
Which of the following statements is correct about a recursive function?	A recursive function calls itself.
In 1735 Leonard Euler proved a remarkable result, which was the solution to the Basel Problem, first posed in 1644 by Pietro Mengoli. This result gave a simple expression for . The formula states that is equal to the limit, as n goes to infinity, of the series . Can this series be computed recursively?	Yes
Which line advances the loop? 1. string s("Hello CS 150"); 2. while (s.size()) 3. { 4. if (s.at(0) == 'C') break; 5. s = s.substr(1); 6. } 7. cout << s << endl;	5

Which of the following loop patterns are used here?
 	
string s{"hello CS 150"};
for (auto e : s)
{
if (toupper(e))
out.put('x');
}
	iterator or range loop

Which of the following loop patterns are used here?
string s{"hello CS 150"};
for (auto e : s)
{
if (toupper(e)) break;
}
	iterator or range loop
	
	loop-and-a-half

Which of the following loop patterns are used here?
string s{"Hello CS 150"};
while (s.size())
{
if (s.at(0) == 'C') break;
s = s.substr(1);
}
cout << s << endl;
	counter-controlled loop
	
	loop-and-a-half
	
	sentinel loop

The pattern of parameter types and order is called the function's:	signaturem

Function overloading lets you call a single function in several different ways	False
When you call a function, the compiler must know:	the number of arguments to pass the name of the function the kind of value returned if any
If a prototype in a header file has a parameter that is a library type, the header file must #include the appropriate library header.	True

What does this function do?
 	
int mystery(int n, int m)
{
if (n == 0) return m;
return m * 10 + mystery(n / 10) + n % 10;
}
	Computes the reverse of the input n

ls -A I sort I lc is called a pipeline	True

What prints?
 	
void fn(int, double, double&) { cout << "A" << endl; }
void fn(int, int, double&) { cout << "B" << endl; }
void fn(int, int, double) { cout << "C" << endl; }
void fn(int, int, int) { cout << "D" << endl; }
int main()
{
fn(2.5, 1.5, 2.5);
}
	C

In a do-while loop, (condition) is followed by a semicolon	True
Default arguments may only be used with value parameters	True
The compiler determines which overloaded function to call by looking at the type of value the function returns	False
cat < a.txt > b.txt erases the contents of b.txt before writing to it	True

What is the value of r(74757677)?
int r(int n)
{
if (n) return (n % 10 == 7) + r(n / 10);
return 0;
}
	5

When using cin >> ch; to read a character, leading whitespace is skipped	True
Filter programs read from standard input and write to standard output	True
The input stream member function for reading a character at a time is named:	get()
The return value of the getline() function is a string object.	False

What is the value of r(126)?
 	
int r(int n)
{
if (n >= 10) return n % 10 + r(n / 10);
return n;
}
	9

Calling cout.put(65.35) is illegal. Your code will not compile.	False

This loop:
char c;
while (c = in.get())
{
cout << c << endl;
}
	illustrates raw character I/O

This loop:
char c;
while (in.get(c))
{
cout << c << endl;
}
	illustrates line-based stream processing

Match each item with the correct question below. What must I change in the test to go to the next iteration? Can my loop reach its bounds? Has my loop reached its goal? What makes this loop quit?	advance the loop necessary bounds loop postcondition loop bounds

What is the output of the following?
string s = "12345";
int i = 1;
while (i < 5)
{
cout << s.substr (i, 1);
i++;
}
	2345

int i = 1;
int sum = 0;
while (i <= 13)
{
sum = sum + i;
i = i + 3;
}
cout << "The value of sum is " << sum;
	The value of sum is 35

Given the function below, what does cout << mystery(3) print?
int mystery(int n)
{
if (n < 2) return 1;
return n * mystery(n - 1);
}
	6

What is the value of r("hello")?
string r(const string& s)
{
if (s.size() > 1) {
string t = s[0] == s[1] ? "" : "*";
return s[0] + t + r(s.substr(1));
}
return s;
}
	"hel*lo"

Which line opens the file input.txt for reading?	ifstream in("input.txt");
Which of the following is true about using recursion?	A recursive computation solves a problem by calling itself with simpler input.
To test if an I/O operation succeeded you must explicitly call the stream's fail() member function	False