Lecture 3: Loops

Monday, April 10, 2017 1:02 PM

LOOPS

Problem Solving with Computers-I

https://ucsb-cs16-sp17.github.io/

Monday, April 10, 2017 1:02 PM

Announcements

- We will not have any enrollment changes.
- Change of section requests- completed
- If you want to pair with someone in the same section (different mentor group), let your current mentor know asap
- Mentor groups will be finalized by tomorrow.
- Homeworks should be submitted in the provided template
- HW 3 and 4 released, due next week in class

Clickers out – frequency AB

Monday, April 10, 2017 1:02 PM

Control Flow: for loops

① Initialize loop variable (i)
② check condition to execute body
④ Update loop variable

```
for ( int i = 0; i < 15; i++ ){
    cout << i << endl ; // Body of the loop (Repeatedly executed)
}
```

③ // Execute statement(s)

i: ~~0~~ ~~1~~ ~~2~~ 3

What is the output of the above code?

i++ ; → i = i+1

0
1
2
⋮

What is the last number that is printed?

A. 14
B. 15

Monday, April 10, 2017 1:02 PM

Write a program that generates the following output:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Previous code:

```
for (int i = 0; i < 15; i++){
   cout << i << endl ;
}
```

(See code written in lecture)

Modify the program from the previous example to print a sequence: x_min, x_min+1, x_min+2, ….x_max for user specified inputs x_min and x_max

Sample run of the program:

```
$ ./test
Enter the limits of the sequence
10 15
10, 11, 12, 13, 14, 15
```

(See lecture code in our class git org)

Monday, April 10, 2017 1:03 PM

Write a program that calculates the sum of the series:
1, 2, 3, ….n
where `n` is specified by the user

Sample run of the program:

```
Enter the number of terms in the sequence
4
Sum of the first 4 terms is: 10
```

```
int sum=0;
int n;
cout << "Enter the no. of terms:";
cin >> n;
for (int i=1; i<=n; i++) {
    sum += i;
}
cout << "Sum of the first" << n
     << "terms is" << sum << endl;
```

note variable i is only visible within the for loop

Monday, April 10, 2017 1:03 PM