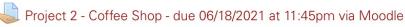


Logistics

- Exam 1 grades posted on Moodle
 - Any concerns?
 - Reach out to the instructor
 - Regrade request?
 - via Email
 - To TA (Emerald, pwmcgehe@ncsu.edu), and copy the instructor
 - Submit by 5pm, this Thursday
 - Solutions?
 - Review your attempts -> correct answers and comments
 - Discuss on piazza

Logistics

- Project 2 (moodle) is posted
 - Due 06/18 (next Friday), at 11:45pm
 - Methods



Unit testing

Project instructions are available at: https://pages.github.ncsu.edu/engr-csc116-staff/2021-summer/projects/project2/index

- Homework 2 (zyBook) is posted
 - Due 06/29, at 2:00pm
 - Exam 2 is on 06/29

Homework 2

Entire class due: 06/29/2021, 2:00 PM EDT



 \square

Topics

- while loops
 - 0 or many times

```
while (<test>) {
        <controlled statement>;
        <controlled statement>;
        ...
        <controlled statement>;
}
<statement>;
```

- do-while loops
 - 1 or many times

```
do {
     <controlled statement>;
     <controlled statement>;
     ...
     <controlled statement>;
} while (<test>);
<statement>;
```

- hasNext methods
 - boolean

- Enumerations
 - a set of predefined constants

Assertions

Practice

Q: What is the output of the following code?

```
int b = 1;
while(b < 4){
    System.out.print(b + " ");
}
    Missing update
    Infinite Loop</pre>
```

A. 1

B. 123

C. 1234



Practice

Q: What is the output of the following code?

```
int b = 1;
while(b < 4){
    System.out.print(b + " ");
    b = b + 1;
}</pre>
A. 1

C. 1 2 3 4

D. 1 1 1 1 1 1 1 1 1 1 1 ...
}
```

```
public static void mystery(int x) {
       int y = 0;
       while (x \% 2 == 0)  {
               y++;
               x = x / 2;
       System.out.println(x + "" + y);
```

Q: What is the output of mystery(42)?

$$\rightarrow$$
 x = 42, y = 0

$$\rightarrow$$
 is x % 2 == 0? Yes

$$\rightarrow$$
 y = 1, x = 21

$$\rightarrow$$
 is x % 2 == 0? No

Q: What is the output of mystery(40)?

$$\rightarrow$$
 x = 40, y = 0, is x % 2 == 0? Yes

$$\rightarrow$$
 y = 1, x = 20, is x % 2 == 0? Yes

$$\rightarrow$$
 y = 2, x = 10, is x % 2 == 0? Yes

$$\rightarrow$$
 y = 3, x = 5, is x % 2 == 0? No

Q: Write a while loop that finds the smallest divisor of a number (other than 1).

Hint:

Divisor \rightarrow a number that divides an integer exactly (no remainder).

```
public static int smallestDivisor (int number) {
  int divisor = 2;
  while ( divisor <= number ){</pre>
     if ( number % divisor == 0 ){
        System.out.println("The smallest number is " + divisor);
        break; // quit the while loop
     divisor++; // update
  return divisor;
```

Lab 8

Write a program that

- prompts the user for a maximum value and uses a do-while loop to output all even numbers between 0 and the maximum value, one per line.
- prompts the user for a **first and last value** and uses a **while loop** to output **all integers** between the first value and the last value, one per line.
- If the user enters a value that cannot be read as an int, the program should print "Invalid value" and exit.