CSC116 Discussion 8

GINA BAI

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 2 - Coffee Shop - due 06/18/2021 at 11:45pm via Moodle

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

90 pts

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

A. 1

B. 1 2 3

C. 1 2 3 4

✓ D. 1 1 1 1 1 1 1 1 1 …

Practice

Q: What is the output of the following code?

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

A. 1

B. 1 2 3 ✓

C. 1 2 3 4

D. 1 1 1 1 1 1 1 1 1 …

```java
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) ?

21 1

→ x = 42, y = 0

→ is x % 2 == 0? Yes

→ y = 1, x = 21

→ is x % 2 == 0? No

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

5 3

→ x = 40, y = 0, is x % 2 == 0? Yes

→ y = 1, x = 20, is x % 2 == 0? Yes

→ y = 2, x = 10, is x % 2 == 0? Yes

→ 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).

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

Hint:
Divisor → a number that divides an integer exactly (no remainder).

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.