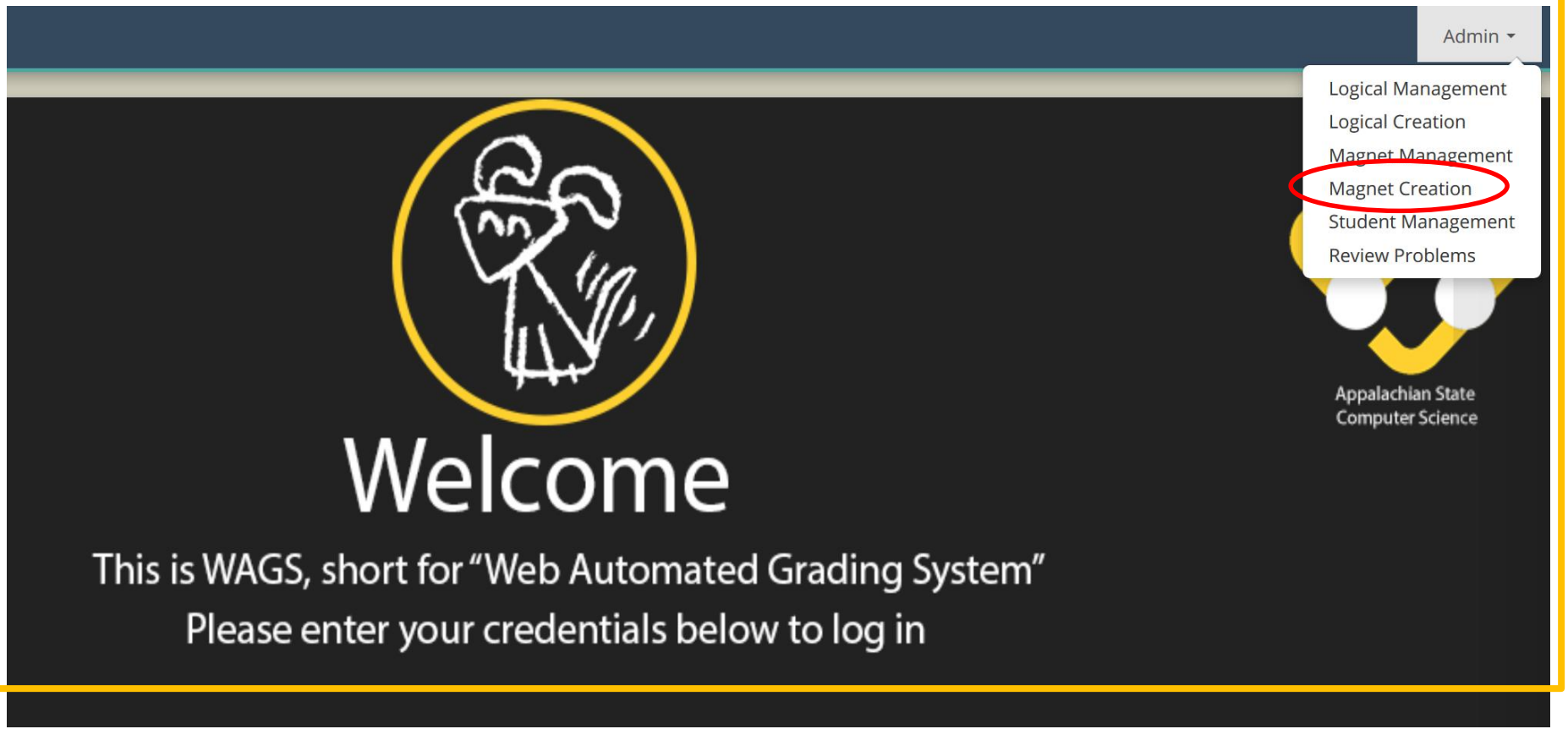
Creating Your Code Magnet Lab

In this session you will:

- Implement your code magnet lab
  - Put your method in standard format
  - Create and test your lab
- Add alternative magnets
  - Add alternative magnets to your method
  - Create and test your lab
- Demonstrate your lab for all workshop participants

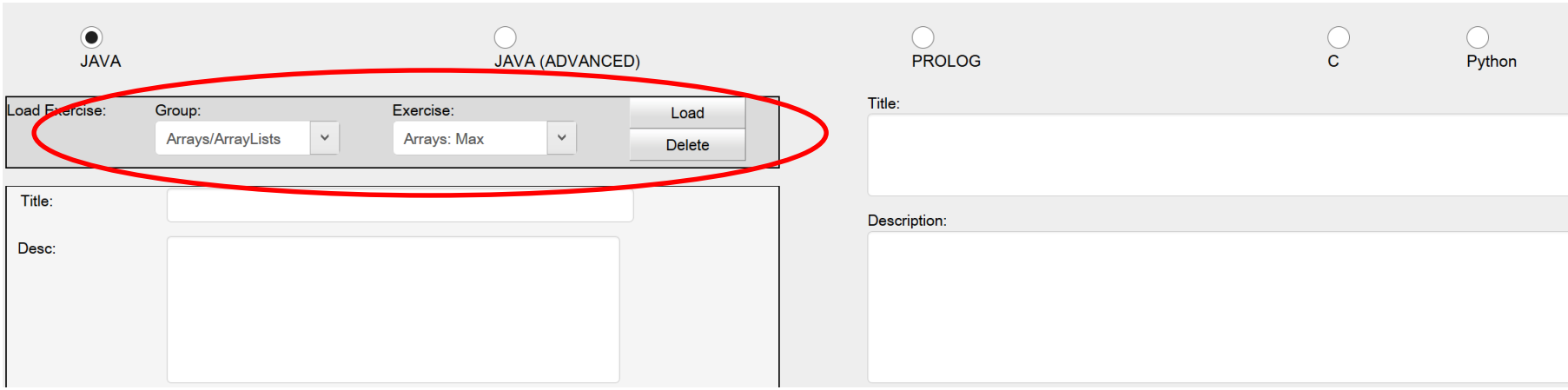
Accessing the Magnet Creation Page

From the main page display the available "Admin" tasks and select the "Magnet Creation" option



The Initial Screen in Magnet Creation

If you want to modify an existing code magnet lab, first locate the lab and load it into the creation screen.



The Iterative Fibonacci Lab - 1

Title:

```
Fibonacci (iterative)
```

Description:

```
Fibonacci (iterative)

The Fibonacci sequence is defined as F0 = 0, F1 = 1, and Fn = Fn-1 + Fn-2.  First terms are 0,1,1,2,3,5,8,13,...
This iterative method should return the nth term, starting a 0 for the first term.
```

Problem Type:

```
basic_problem
```

Class:

```
public class Student {<br><!-- panel --><br>}
```

Functions:

```
public int iterativeFibonacci(int num){<br><!-- panel --><br>}.:|:.
```

- The top part of the magnet creation screen includes all the information except statements
- The
<!-- panel -->
 creates a drop zone for magnets

The Iterative Fibonacci Lab - 2

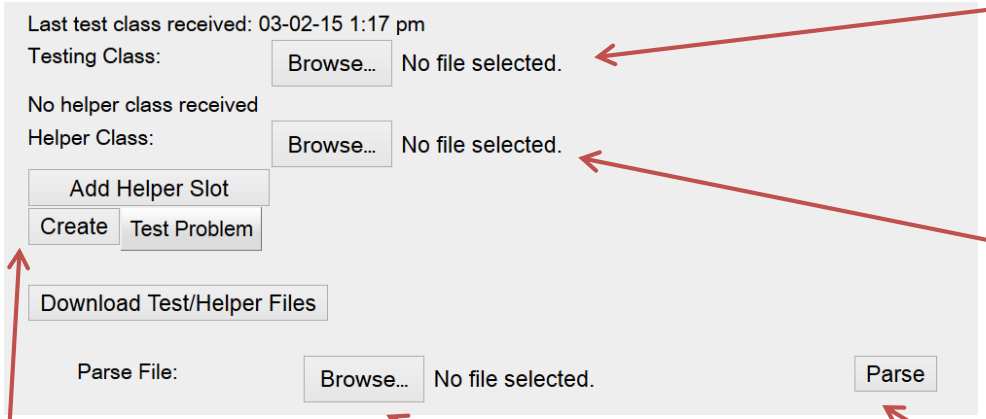
Statements:

```
if(num == 0 || num == 1) {<br><!-- panel --><br>}.:|:.return num;.:|:.int current = 1;.:|:.int previous = 0;.:|:.int temp;.:|:.while (num &gt; 1){<br><!-- panel --><br>}.:|:.temp = current;.:|:.current = current + previous;.:|:.previous = temp;.:|:.num--;.:|:.return current;.:|:.
```

- Magnets are separated by a .:|:.
- Special characters are converted to html format, such as > being converted to >
- The order of the magnets is not significant; the display of magnets at runtime is randomized
- Notice that control statements contain their own drop zones for other magnets
- In this first example, all the magnets will be used to create a solution

Creating a New Code Magnet Lab

Put your method in standard format and add the header block, as described in the following slides



(2) Use “Browse” to upload your test program

(3) Use “Browse” to upload any helper files

(4) Press Create

(1) Use “Browse” to upload you code magnet file and then press “Parse”; examine the textboxes to see that everything is correct

The iterativeFibonacci in Standard Format

```
public int iterativeFibonacci(int num){
    if(num == 0 || num == 1) {
      return num;
    }
    int current = 1;
    int previous = 0;
    int temp;
    while (num > 1){
      temp = current;
      current = current + previous;
      previous = temp;
      num--;
    }
    return current;
}
```

One statement per line

Put the opening brace on the same line as the statement.

Put the closing brace on a separate line.

You can add comments using // at the end of the lines.

Adding the Title and Description

The title and description are part of a header comment that appears at the start of the file. The title is the name of the code magnet lab and needs to be unique.

Start the header with a comment line.

The next line is the title.

Put a blank line after the title.

Then enter the student instructions; it can be multiple lines.

As the last line end the header comment

```
/**********************************
Fibonacci (iterative)

The Fibonacci sequence is defined as
F0 = 0, F1 = 1, and Fn = Fn-1 + Fn-2
First terms are 0,1,1,2,3,5,8,13,...
This iterative method should return
the nth term, starting a 0 for the
first term.
**********************************/
```

Adding Alternative Magnets

```
public int iterativeFibonacci(int num){
    if(num == 0 || num == 1) {
      return num;
      return 1;
    }
    int current = 1;
    int previous = 0;
    int previous = 1;
    int temp;
    while (num > 1){
    while (num >= 1){
      temp = current;
      current = current + previous;
      previous = temp;
      previous = current;
      num--;
      num++;
    }
    return current;
    return temp;
  }
```

First put your method in standard format.

Duplicate a line you want an alternative magnet and make the desired change. Alternative magnets are shown in red for the Fibonacci method.

The order of the lines of code is not important; one magnet is made for each line. But **for readability by another human**, it is recommended to put the correct magnets in order and to put alternative magnets next to the correct magnet.

Demonstrate Then it's Your Turn

- Watch while we demonstrate adding alternative magnets to the recursive factorial method

- Now its your turn to add alternative magnets to your code magnet lab.

Put your method with alternative magnets in standard format, upload and parse it, and test your lab now.

Demonstrate Your Code Magnet Lab

- Congratulations on creating your first code magnet lab!

We now offer you the opportunity to demonstrate your lab to other workshop participants.

Final Activity – Evaluation of Workshop

Thank you for attending this workshop. We hope you will use microlabs in your courses and participate in our Honorarium Program.

Please go online and complete the workshop survey at the link:

https://www.surveymonkey.com/r/ICER_2015

Then you are free to leave; have a safe trip home.