Introduction to Programming

Class 3, 11 January 2017

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Introduction to Programming
Class 3, 11 January 2017

Goals

Goal 1: You will understand what an algorithm is. (BIG GOAL!)

Goal 2: You will know how to approach a programming task with others and on your own.

Vocabulary

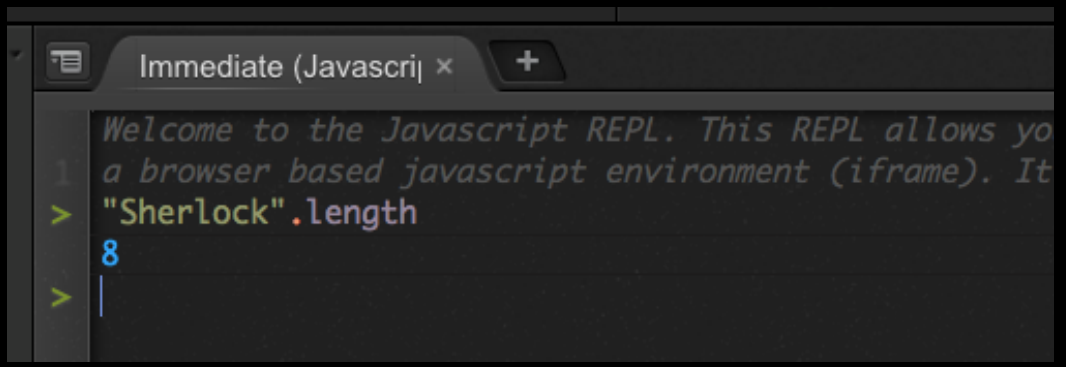
Algorithm
Flowchart
Function
Variable
String
Comment
Concatenation
Escape character

Code

```
alert(string)
prompt(string)
var
// Comment
string.length
\"
\n
```

Line-up/Pair-up: TV Show Titles

- **Think of a favorite TV show.**



- **Line up according to the number of characters (i.e., letters, whitespace, and punctuation) in the title.**
- **Pair up**

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Goal 1: You will understand what an algorithm is. (BIG GOAL!)

Algorithm

A series of finite steps that will solve a problem.

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Task: Make pancakes.

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Method

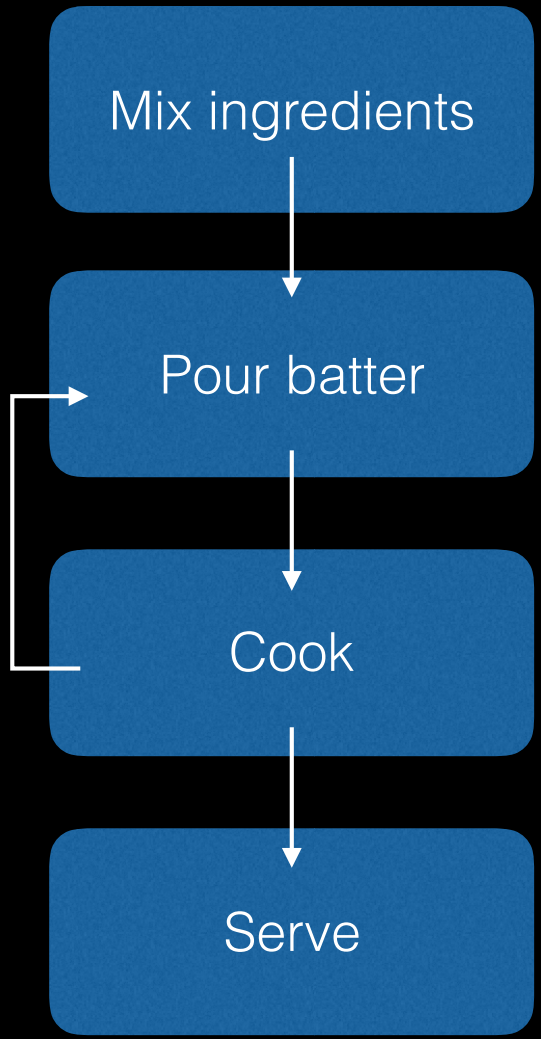
1. Sift the flour, baking powder, salt and caster sugar into a large bowl. In a separate bowl or jug, lightly whisk together the milk and egg, then whisk in the melted butter.

2. Pour the milk mixture into the flour mixture and, using a fork, beat until you have a smooth batter. Any lumps will soon disappear with a little mixing. Let the batter stand for a few minutes.

3. Heat a non-stick frying pan over a medium heat and add a knob of butter. When it's melted, add a ladle of batter (or two if your frying pan is big enough to cook two pancakes at the same time). It will seem very thick but this is how it should be. Wait until the top of the pancake begins to bubble, then turn it over and cook until both sides are golden brown and the pancake has risen to about 1cm (½in) thick.

4. Repeat until all the batter is used up. You can keep the pancakes warm in a low oven, but they taste best fresh out the pan.

5. Serve with lashings of real maple syrup and extra butter if you like.



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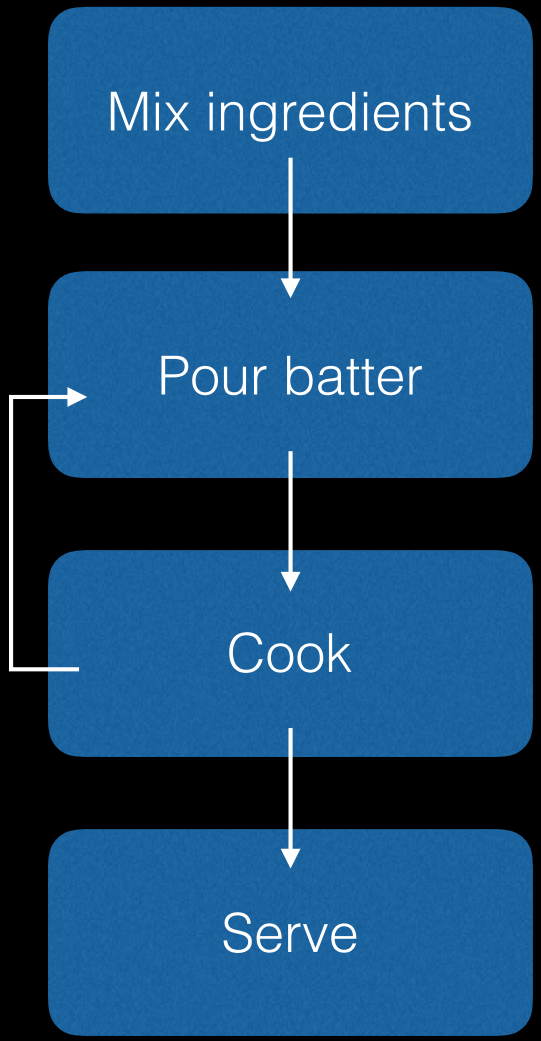
Goal 1: You will understand what an algorithm is. (BIG GOAL!)

Flowchart



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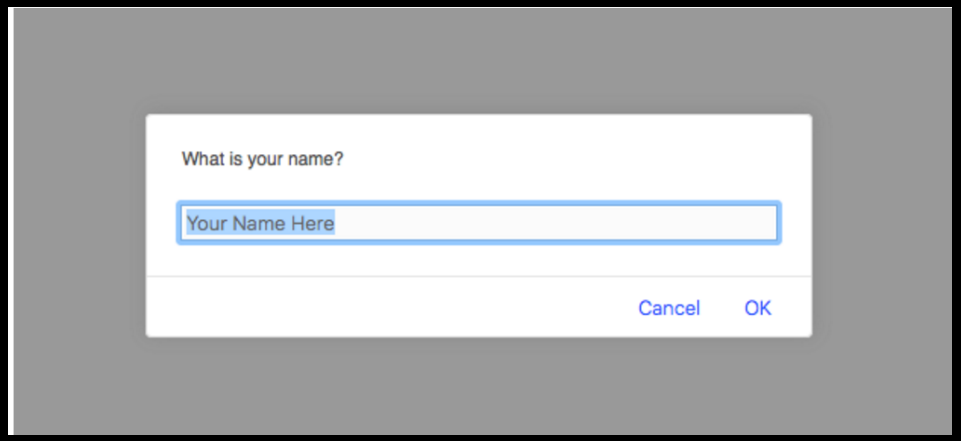
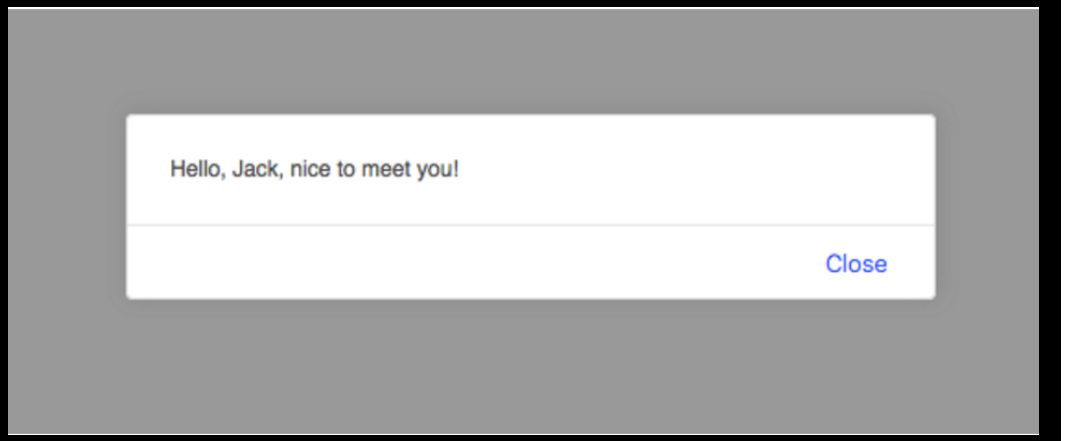
Goal 2: You will know how to approach a programming task with others and on your own.

Task01-Saying Hello

Create a program called Task01-SayingHello.html that prompts for your name and prints a greeting using your name.





With your partner, write the algorithm in English

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Goal 2: You will know how to approach a programming task with others and on your own.

With your partner, write the algorithm in English

1. Prompt the user for his or her name.
2. Display the message.

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Goal 2: You will know how to approach a programming task with others and on your own.

Algorithm / Pseudo-code

1. Prompt the user for his or her name.

1a. Remember the user's name.

1b. Construct the message with the user name and save it.

2. Display the message.

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Goal 2: You will know how to approach a programming task with others and on your own.

Algorithm

1. Prompt the user for his or her name.
2. Remember the user's name.
3. Construct the message with the user name and save it.
4. Display the message.

With your partner, write a flowchart

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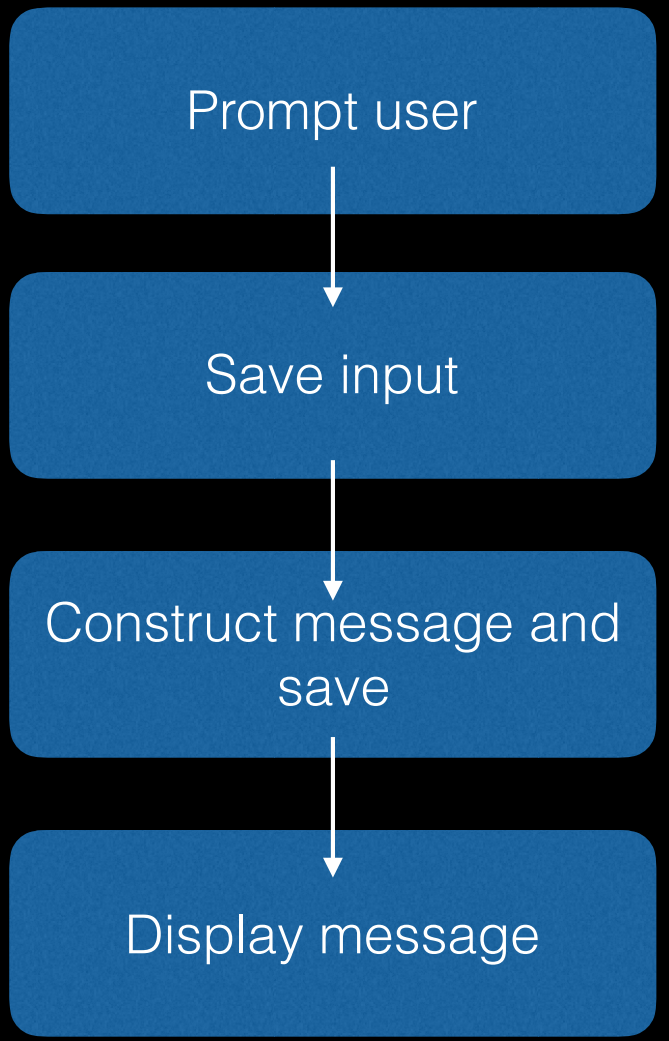
1. Prompt the user for his or her name.
2. Remember the user's name.
3. Construct the message with the user name and save it.
4. Display the message.

Flowchart



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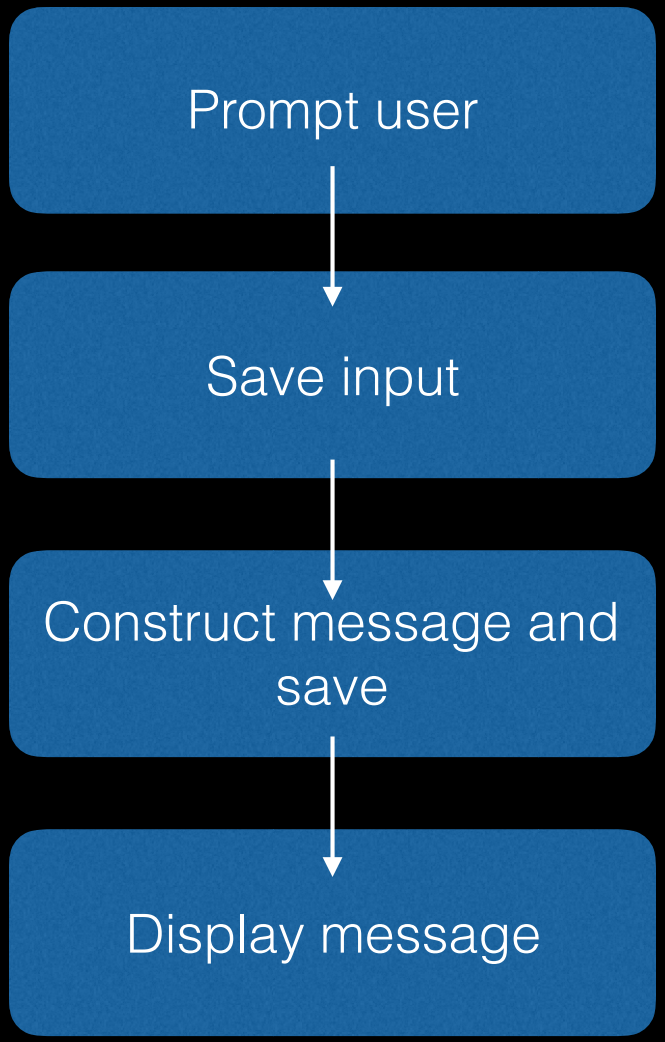
Goal 2: You will know how to approach a programming task with others and on your own.

Flowchart



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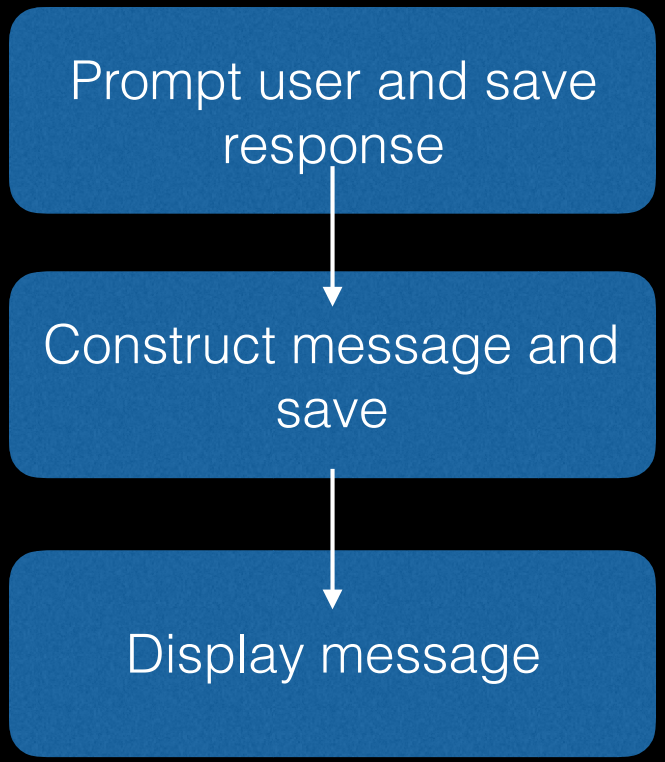
Goal 2: You will know how to approach a programming task with others and on your own.

Flowchart



Javascript

```
// Get the user's name and save it in name
var name = prompt("What is your name?");
```

```
// Construct message with name
var message = "Hello, " + name + ", nice to meet you."
```

```
// Display message
alert(message);
```

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Goal 2: You will know how to approach a programming task with others and on your own.

Task01-SayHello.html

```
<script>

// Get the user's name and save it in name
var name =  prompt("What is your name?");

// Construct message with name
var message = "Hello, " + name + ", nice to meet you.";

// Display message
alert(message);

</script>
```

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Task01-SayHello.html

```
<script>

// Get the user's name and save it in name
var name = prompt("What is your name?");

// Construct message with name
var message = "Hello, " + name + ", nice to meet you.";

// Display message
alert(message);

</script>
```

Functions

Variables

String Concatenation

Comments

HTML Tags

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Goal 2: You will know how to approach a programming task with others and on your own.

Task01-SayHello.html

Functions

```
prompt("What is your name?");

alert(message);
```

Variables

```
var name =

var message =
```

String Concatenation

```
"Hello, " + name + ", nice to meet you.";
```

Comments

```
// Get the user's name and save it in name
// Construct message with name
// Display message
```

HTML Tags

```
<script> </script>
```

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Task01-SayHello.html

```
<script>

// Get the user's name and save it in name
var name = prompt("What is your name?");

// Construct message with name
var message = "Hello, " + name + ", nice to meet you.";

// Display message
alert(message);

</script>
```

Functions

```
prompt("What is your name?");
alert(message);
```

Variables

```
var name =
var message =
```

String Concatenation

```
"Hello, " + name + ", nice to meet you.";
```

Comments

```
// Get the user's name and save it in name
// Construct message with name
// Display message
```

HTML Tags

```
<script> </script>
```

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Goal 2: You will know how to approach a programming task with others and on your own.

Functions

```
prompt("What is your name?");
alert(message);
```

Variables

```
var name =
var message =
```

Try Task01 with your partner.

String Concatenation

```
"Hello, " + name + ", nice to meet you.";
```

Comments

```
// Get the user's name and save it in name
// Construct message with name
// Display message
```

HTML Tags

```
<script></script>
```

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Task01-SayHello.html

```
<script>

// Get the user's name and save it in name
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// Construct message with name
var message = "Hello, " + name + ", nice to meet you.";

// Display message
alert(message);

</script>
```

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Goal 2: You will know how to approach a programming task with others and on your own.

1. Read Task02-CountingNumberOfCharacters
2. Write an algorithm (pseudo-code or flowchart)

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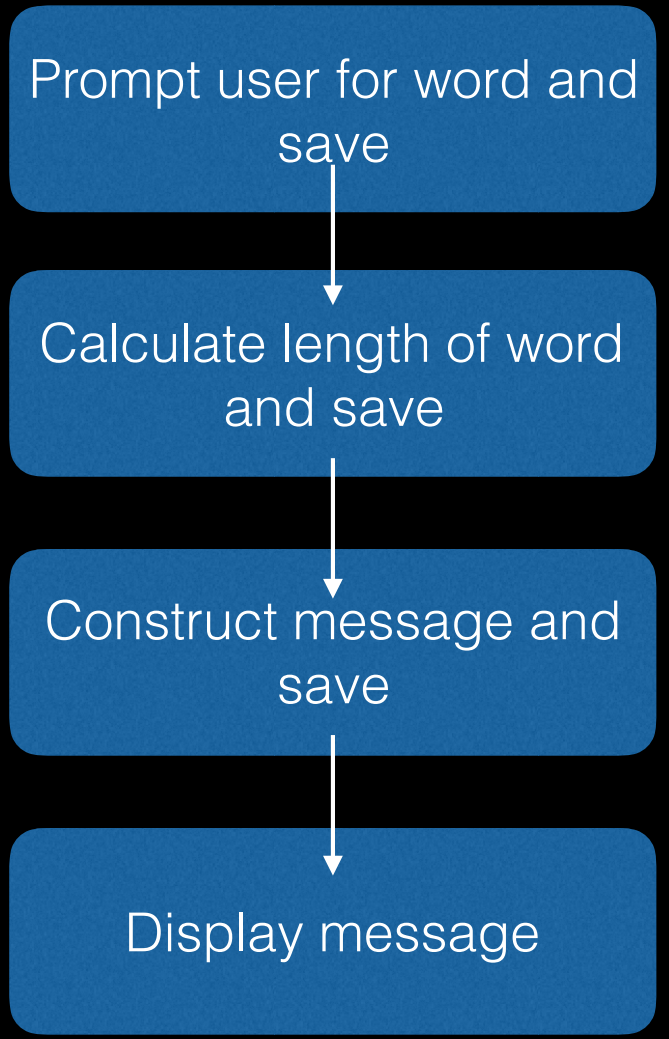
Task02-CountNumberOfCharacters.html

Flowchart

1. Prompt the user for word and save.
2. Calculate length of word and save.
3. Construct the message with the user word and length and save it.
4. Display the message.



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Other Code

Code	Example
`string.length`	`var len = "Hello".length;`
	`len` will be 5

Escape Characters	Example
`\"`	`alert("Call me \"Bill\", please.");`
	Quotes around Bill will display.
`\n`	`alert("Call me Bill.\nNow.");`
	Now will print on a new line.

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