

1 (5 pts.). The JavaScript code function `start()`, listed below, is invoked when the HTML document referencing it is loaded. It prompts for and enters name-income pairs until the user clicks the **Cancel** button in the prompt for a name. For each name-income pair, it stores the income in the associative array `income` with the name as its key. After inputting the associative array, `start()` calls the function `maxIncome()`, passing it the associative array. This function returns the name associated with the largest income (or a name if there is a draw). This name and the associated income are then displayed in an alert box. You write the function `maxIncome()`.

```
function start()
{
  var income = new Object(),
      name;

  while ( name = prompt( "Name\nCancel to exit", "" ) )
    income[ name ] = prompt( name + "'s income", "" );

  var richest = maxIncome( income );

  alert( richest + " has the greatest income,\n" + income[ richest ] );
}
```

Now write the function `maxIncome()`.

Answer

```
function maxIncome( income )
{
  var max = 0,
      richest = "";

  for ( var name in income )
    if ( income[ name ] > max ) {
      max = income[ name ];
      richest = name;
    }

  return richest;
}
```

2 (6 pts.).

- a. Write a regular expression that matches a substring that contains one of the uppercase letters A-C followed immediately by another (possibly the same) of these letters. This pair of letters is immediately followed by the same pair of letters. After 0 or more characters, the same four-letter sequence again appears. For example, the pattern matches ABABXXXABAB and CCCC3CCCC but not ABBAZABBA or ABABYYBABA.

Answer

```
/([A-c]{2})\1.*\1\1/
```

- b. We want JavaScript code that will replace every occurrence of “and” that is not part of a larger word with the word “or”. Any or all of the “a,” “n,” and “d” may be upper or lower case, but the replacement string (“or”) is always lowercase. For example, given the string

“Roland is driving and singing. And she is eating and expanding.”

the string

“Roland is driving or singing. or she is eating or expanding.”

is produced. In the following, `reg` is the regular expression (with modifiers) and `str` is the given string. The value obtained by invoking the appropriate method of `str` is assigned to `str1`. You supply the regular expression and the method invocation.

```
var reg = _/\band\b/ig_;  
str1 = str.replace( reg2, "or" );
```

3 (3 pts.). Explain the value propositions of the following:

- B2B Hub
- E-distributor
- B2B Service Provider
- Matchmaker
- Infomediary

Answer

Later