Midterm #2 Format

- 3-4 Trace the output; find the errors; and evaluation questions
- 4-5 Programming questions
### Python Language Index

#### Core Language Elements and Functions

- and
- chr
- def
- elif
- else
- except
- float
- for
- format
- global
- if
- import
- in
- input
- int
- max
- min
- not
- or
- ord
- print
- range
- return
- while

#### Module Functions

- random.randint()
- math.sqrt()

#### String Testing Methods

- isalpha()
- isdigit()
- islower()
- isupper()
- isspace()
- isalnum()
- find()

#### String Modification Methods

- rstrip()
- lstrip()
- lower()
- upper()
- capitalize()
- title()
- swapcase()
- replace()

#### Sample ASCII values

<table>
<thead>
<tr>
<th>Character</th>
<th>ASCII Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>65</td>
</tr>
<tr>
<td>a</td>
<td>97</td>
</tr>
<tr>
<td>space</td>
<td>32</td>
</tr>
<tr>
<td>zero</td>
<td>48</td>
</tr>
</tbody>
</table>
Concepts: Count Controlled Loops

- What is a count controlled loop?
- Mechanics and how a count controlled loop works
- Iterating over a list (i.e. for x in [1,2,3,4,5]:)
- Using the target variable in a for loop
- Understanding nested loops (i.e. loops inside of other loops)
- Comparing and contrasting "for" loops with "while" loops (when to use each loop, main advantages of each structure, etc)
Concepts: The range() function

- What is the range() function?
- Mechanics and how the function works
- Creating simple ranges (i.e. range(5))
- Creating ranges with defined start and end points (i.e. range(3,10))
- Creating ranges with a step value (i.e. range(5,50,5))
- Creating ranges that count backwards (i.e. range(50,5,-5))
- User controlled ranges (i.e. range(1, somevariable))
Concepts: Functions

- Mechanics and how functions work
- The “black box” model
- Function definitions
- Calling a function
- Arguments
- Passing arguments to your own functions
- Passing multiple arguments to your own functions
- Local variables (variables that are defined inside a function and can only be accessed inside that function)
Concepts: Functions

- Global variables (variables created outside a function that can be accessed by any part of your program)
- Making changes to global variables inside a function using the ‘global’ keyword
- Return values
- Writing a value returning function (i.e. using the ‘return’ keyword to send a result from your function to the part of your program that called that function)
- Returning multiple values from a function
- Input, Processing & Output notation
Concepts: String Manipulation

- Iterating through all characters in a string using a for loop
- Indexing a specific character in a string using "bracket" notation
- Iterating through all characters in a string using string indexes
- String immutability (you can’t change a string using bracket notation like you would change a list element)
- Testing a string for substrings using the "in" operator
- Detecting character types in a string using the built-in string testing methods (isdigit, isalpha, isalnum, islower, isupper, isspace)
- String slicing
Some Sample Problems

To be handed out in class (on paper)