1. For each of the following expressions, show the value that will be returned by the Python interpreter and give the type of the resulting value. Note: if the operation is not allowed in Python, write INVALID on that line.
Assume that the following variable assignments have already been made:

```python
value = 40
word = "inauguration"
names = ["molly", "tex", "ada", "oberon"]
```

<table>
<thead>
<tr>
<th>VALUE</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>range(10, value, 10)</td>
<td>----</td>
</tr>
<tr>
<td>value &lt; 35</td>
<td>----</td>
</tr>
<tr>
<td>50/value == 40/value</td>
<td>----</td>
</tr>
<tr>
<td>word[2:7]</td>
<td>----</td>
</tr>
<tr>
<td>&quot;augur&quot; in word</td>
<td>----</td>
</tr>
<tr>
<td>names[1]*3</td>
<td>----</td>
</tr>
<tr>
<td>len(names)</td>
<td>----</td>
</tr>
</tbody>
</table>

2. Trace the following program and show its output:

```python
x = 5
y = "goats"
z = ""
for i in range(5):
    if x > i:
        x = x - 1
    else:
        x = x + 1
print(z)
```
3. Write a program that asks the user to enter some text and creates a new string where every 3rd character has been replaced by a dash. Print out this new string. One example run is shown below.

```bash
$ python dasher.py
Enter your phrase: pumpkin spice latte
pu-pk-n -pi-e -at-e
```

4. Write a program that helps people figure out when the last train leaves 30th Street Station for Swarthmore. Ask the user to type in a day of the week and your program should print the time that the train leaves. For simplicity, assume that the user always inputs a valid day of the week in all lowercase case letters. For reference, here are the train times:

- saturday and sunday: last train leaves 30th Street at 11:12pm
- all other days: last train leaves 30th Street at 12:09am

```bash
$ python septa.py
Enter a day of the week: wednesday
The last train leaves at 12:09am

$ python septa.py
Enter a day of the week: sunday
The last train leaves at 11:12pm
```