Siena College's **31st Annual** High School Programming Contest
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Gold Problem #4: Monodigit Numbers from Binary to Hexadecimal

Background Information: A positive integer is a **monodigit number** if all of its digits are the same. Examples of base ten monodigit numbers are 8, 22, 66666, and 444444444.
Monodigit numbers exist in all number bases. For example, 1111 is a monodigit number in binary or base two.
Number theorists want to determine if there is a pattern for monodigit numbers. A program that will help them find patterns will take any positive integer in base ten as input and then output the integer in number bases where it is a monodigit number. For example, 6 in base five is 11 and in bases seven through sixteen it is the single monodigit 6.

Programming Problem:

Input: A positive integer N less than 1,000,000.
Output: **NO** if N is not a monodigit number in any base from base 2 to base 16. If N is a monodigit number in any base B (where B can represent bases from two to ten) then there must be a line of output for each. The line will consist of N followed by the word "Base" followed by the value of the base B, followed by a colon, followed by the base B equivalent of N. For number bases that require more than 10 digits, output should follow the common convention of using as many digits A, B, C… as needed after 0 … 9.

Example 1: Input:
```
6
```
Output:
```
6 Base 5: 11
6 Base 7: 6
6 Base 8: 6
6 Base 9: 6
6 Base 10: 6
6 Base 11: 6
6 Base 12: 6
6 Base 13: 6
6 Base 14: 6
6 Base 15: 6
6 Base 16: 6
```

Example 2: Input:
```
29
```
Output:
```
NO
```

Example 3: Input:
```
262143
```
Output:
```
262143 Base 2: 1111111111111111
262143 Base 4: 333333333
262143 Base 8: 777777
```

Example 4: Input:
```
4095
```
Output:
```
4095 Base 2: 111111111111
4095 Base 4: 333333
4095 Base 8: 7777
4095 Base 16: FFF
```