```matlab
clc; clear; close all;

input_text = 'BANANA$';
[BWT_output, original_index] = BWT_encode(input_text);
disp(['BWT Encoded: ', BWT_output]);
```

BWT Encoded: ANNB$AA

```matlab
original_size = length(input_text);
compressed_size = length(BWT_output);
compression_ratio = original_size / compressed_size;

disp(['Original Text: ', input_text]);
```

Original Text: BANANA$

```matlab
disp(['Original Size: ', num2str(original_size)]);
```

Original Size: 7

```matlab
disp(['Compressed Size: ', num2str(compressed_size)]);
```

Compressed Size: 7

```matlab
disp(['Compression Ratio: ', num2str(compression_ratio)]);
```

Compression Ratio: 1

```matlab
decoded_text = BWT_decode(BWT_output, original_index);
disp(['BWT Decoded: ', decoded_text]);
```

BWT Decoded: $BANANA