Module std::ascii

The ASCII module defines basic string and char newtypes in Move that verify that characters are valid ASCII, and that strings consist of only valid ASCII characters.

The <u>String</u> struct holds a vector of bytes that all represent valid ASCII characters. Note that these ASCII characters may not all be printable. To determine if a <u>String</u> contains only "printable" characters you should use the <u>all_characters_printable</u> predicate defined in this module.

An ASCII character.

An invalid ASCII character was encountered when creating an ASCII string.

An invalid index was encountered when creating a substring.

Convert a byte into a Char that is checked to make sure it is valid ASCII.

Convert a vector of bytes bytes into an String. Aborts if bytes contains non-ASCII characters.

Convert a vector of bytes bytes into an <u>String</u>. Returns Some() if the bytes contains all valid ASCII characters. Otherwise returns None.

Returns true if all characters in string are printable characters Returns false otherwise. Not all Strings are printable strings.

Push a Char to the end of the string.

Pop a Char from the end of the string.

Returns the length of the string in bytes.

Append the other string to the end of string.

Insert the other string at the at index of string.

Copy the slice of the string from i to j into a new String.

Get the inner bytes of the string as a reference

Unpack the string to get its backing bytes

Unpack the char into its underlying bytes.

Returns true if b is a valid ASCII character. Returns false otherwise.

Returns true if byte is a printable ASCII character. Returns false otherwise.

Returns true if string is empty.

Convert a string to its uppercase equivalent.

Convert a string to its lowercase equivalent.

Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.

Convert a char to its lowercase equivalent.

Convert a char to its lowercase equivalent.

Struct

The <u>String</u> struct holds a vector of bytes that all represent valid ASCII characters. Note that these ASCII characters may not all be printable. To determine if a <u>String</u> contains only "printable" characters you should use the <u>all_characters_printable</u> predicate defined in this module.

```bash
An ASCII character.
```bash
An invalid ASCII character was encountered when creating an ASCII string.
```bash
An invalid index was encountered when creating a substring.
```bash
Convert a byte into a Char that is checked to make sure it is valid ASCII.
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```bash
Convert a vector of bytes bytes into an <u>String</u> . Aborts if bytes contains non-ASCII characters.
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```bash
Convert a vector of bytes bytes into an $\underline{\text{String}}$. Returns Some() if the bytes contains all valid ASCII characters. Otherwise returns None.
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Returns true if all characters in <u>string</u> are printable characters Returns false otherwise. Not all <u>String</u> s are printable strings.
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Push a <u>Char</u> to the end of the <u>string</u> .
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Pop a Char from the end of the string.
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Returns the length of the string in bytes.
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Append the other string to the end of \underline{\text{string}}.
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Insert the other string at the at index of \underline{\text{string}}.
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Copy the slice of the string from i to j into a new String .
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes

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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if byte is a printable ASCII character. Returns false otherwise.
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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.
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Convert a <u>char</u> to its lowercase equivalent.
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Convert a <u>char</u> to its lowercase equivalent.
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Struct
An ASCII character.
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Convert a vector of bytes bytes into an $\underline{\text{String}}$ . Returns Some() if the bytes contains all valid ASCII characters. Otherwise returns None.
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Returns true if all characters in <u>string</u> are printable characters Returns false otherwise. Not all <u>String</u> s are printable strings.
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Push a <u>Char</u> to the end of the <u>string</u> .
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Pop a Char from the end of the string.
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Returns the length of the <u>string</u> in bytes.
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Append the other string to the end of string.
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Insert the other string at the at index of string.

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```bash
Copy the slice of the \underline{\text{string}} from i to j into a new \underline{\text{String}} .
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if byte is a printable ASCII character. Returns false otherwise.
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Returns true if <u>string</u> is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$ . Returns the length of the $\underline{\text{string}}$ if the substr is not found Returns 0 if the substr is empty.
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Convert a <u>char</u> to its lowercase equivalent.
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Convert a <u>char</u> to its lowercase equivalent.
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Constants

An invalid ASCII character was encountered when creating an ASCII string.

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An invalid index was encountered when creating a substring.
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Convert a byte into a Char that is checked to make sure it is valid ASCII.
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Convert a vector of bytes bytes into an String . Aborts if bytes contains non-ASCII characters.
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Returns true if all characters in string are printable characters Returns false otherwise. Not all Strings are printable strings.
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Push a Char to the end of the string.
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Pop a Char from the end of the string.
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Returns the length of the string in bytes.
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Append the other string to the end of \underline{\text{string}}.
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Insert the other string at the at index of \underline{\text{string}} .
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Copy the slice of the \underline{\text{string}} from i to j into a new \underline{\text{String}} .
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the string. Returns the length of the string if the substr is not found.
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Convert a char to its lowercase equivalent.

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Convert a char to its lowercase equivalent.
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Push a Char to the end of the string.
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Pop a Char from the end of the string.
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Returns the length of the string in bytes.
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Append the other string to the end of \underline{\text{string}} .
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Unpack the char into its underlying bytes.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the string. Returns the length of the string if the substr is not found.

Returns 0 if the substr is empty.
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Convert a <u>char</u> to its lowercase equivalent.
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Function
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Push a <u>Char</u> to the end of the <u>string</u> .
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Pop a Char from the end of the string.
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Returns the length of the string in bytes.
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Append the other string to the end of string.
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Copy the slice of the string from i to j into a new String .
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes

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Unpack the char into its underlying bytes.
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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Returns 0 if the substr is empty.
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Convert a <u>char</u> to its lowercase equivalent.
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Convert a <u>char</u> to its lowercase equivalent.
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Function
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Push a <u>Char</u> to the end of the <u>string</u> .
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Computes the index of the first occurrence of the substr in the <u>string</u>. Returns the length of the <u>string</u> if the substr is not found.

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Returns the length of the string in bytes.
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Append the other string to the end of \underline{\text{string}}.
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Insert the other string at the at index of \underline{\text{string}}.
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Copy the slice of the \underline{\text{string}} from i to j into a new \underline{\text{String}} .
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if byte is a printable ASCII character. Returns false otherwise.
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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the \underline{\text{string}}. Returns the length of the \underline{\text{string}} if the substr is not found.
Returns 0 if the substr is empty.
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Convert a char to its lowercase equivalent.
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Convert a char to its lowercase equivalent.
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```bash
Function
Returns true if all characters in string are printable characters Returns false otherwise. Not all Strings are printable strings.
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Push a Char to the end of the string.
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Pop a Char from the end of the string.
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Returns the length of the string in bytes.
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Append the other string to the end of $\underline{\text{string}}$.

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Insert the other string at the at index of \underline{\text{string}} .
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Copy the slice of the \underline{\text{string}} from i to j into a new \underline{\text{String}} .
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if string is empty.
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Convert a <u>string</u> to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.
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Convert a <u>char</u> to its lowercase equivalent.
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Convert a <u>char</u> to its lowercase equivalent.
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Returns true if <u>byte</u> is a printable ASCII character. Returns false otherwise.

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Function
Push a Char to the end of the string.
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Pop a Char from the end of the string.
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Returns the length of the string in bytes.
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Append the other string to the end of string.
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Insert the other string at the at index of string.
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Copy the slice of the \underline{\text{string}} from i to j into a new \underline{\text{String}} .
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Get the inner bytes of the  $\underline{\text{string}}$  as a reference

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Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if byte is a printable ASCII character. Returns false otherwise.
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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.
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Convert a <u>char</u> to its lowercase equivalent.
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Convert a <u>char</u> to its lowercase equivalent.
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Function
Pop a <u>Char</u> from the end of the <u>string</u> .
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Returns the length of the string in bytes.
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Append the other string to the end of string.
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Insert the other string at the at index of string.
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Copy the slice of the \underline{\text{string}} from i to j into a new \underline{\text{String}} .
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if **byte** is a printable ASCII character. Returns false otherwise.

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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the \underline{\text{string}}. Returns the length of the \underline{\text{string}} if the substr is not found.
Returns 0 if the substr is empty.
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Convert a char to its lowercase equivalent.
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Convert a char to its lowercase equivalent.
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Function

Returns the length of the string in bytes.
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Append the other string to the end of string.
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Insert the other string at the at index of string.
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Copy the slice of the $\underline{\text{string}}$ from i to j into a new $\underline{\text{String}}$.
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes
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Unpack the <u>char</u> into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if byte is a printable ASCII character. Returns false otherwise.
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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the string. Returns the length of the string if the substr is not found.
Returns 0 if the substr is empty.
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Convert a char to its lowercase equivalent.
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Convert a char to its lowercase equivalent.
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Function
Append the other string to the end of \underline{\text{string}}.
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Insert the other string at the at index of string.
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Copy the slice of the \underline{\text{string}} from i to j into a new \underline{\text{String}} .
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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```bash
Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if byte is a printable ASCII character. Returns false otherwise.
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```bash
Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.

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Convert a char to its lowercase equivalent.
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Convert a char to its lowercase equivalent.
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Function
Insert the other string at the at index of \underline{\text{string}}.
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Copy the slice of the string from i to j into a new String .
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Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if byte is a printable ASCII character. Returns false otherwise.
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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the \underline{\text{string}}. Returns the length of the \underline{\text{string}} if the substr is not found.
Returns 0 if the substr is empty.
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Convert a char to its lowercase equivalent.
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Convert a char to its lowercase equivalent.
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```bash
Function
Copy the slice of the <u>string</u> from i to j into a new <u>String</u>.
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Get the inner bytes of the string as a reference
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***
Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if <u>byte</u> is a printable ASCII character. Returns false otherwise.
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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.
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Convert a <u>char</u> to its lowercase equivalent.
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Convert a char to its lowercase equivalent.
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```bash
Function
Get the inner bytes of the string as a reference
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Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if byte is a printable ASCII character. Returns false otherwise.
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Returns true if string is empty.

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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the \underline{\text{string}}. Returns the length of the \underline{\text{string}} if the substr is not found.
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Convert a char to its lowercase equivalent.
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Convert a char to its lowercase equivalent.
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Function
Unpack the string to get its backing bytes
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Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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Returns true if byte is a printable ASCII character. Returns false otherwise.
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Returns true if string is empty.
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Convert a string to its uppercase equivalent.
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Convert a string to its lowercase equivalent.
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Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.

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Convert a char to its lowercase equivalent.
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Function
Unpack the char into its underlying bytes.
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Returns true if b is a valid ASCII character. Returns false otherwise.
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```

Returns true if byte is a printable ASCII character. Returns false otherwise.

```
```bash

```bash
Returns true if string is empty.
```bash

```bash
***
Convert a string to its uppercase equivalent.
```bash

```bash
Convert a string to its lowercase equivalent.
```bash
```bash
Computes the index of the first occurrence of the substr in the \underline{\text{string}}. Returns the length of the \underline{\text{string}} if the substr is not found.
Returns 0 if the substr is empty.
```bash
```bash
,,,
Convert a char to its lowercase equivalent.
```bash

```bash
***
Convert a char to its lowercase equivalent.
```bash
```bash
```

٠.,

Function

Convert a char to its lowercase equivalent.

Returns true if <u>byte</u> is a printable ASCII character. Returns false otherwise.
```bash
```bash
Returns true if <u>string</u> is empty.
```bash
```bash
Convert a string to its uppercase equivalent.
```bash
```bash
Convert a string to its lowercase equivalent.
```bash
```bash
Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.
```bash
```bash
Convert a <u>char</u> to its lowercase equivalent.
```bash
```bash

```
```bash

```bash
Function
Returns true if string is empty.
```bash

```bash
Convert a string to its uppercase equivalent.
```bash
```bash
***
Convert a string to its lowercase equivalent.
```bash
```bash
Computes the index of the first occurrence of the substr in the string. Returns the length of the string if the substr is not found.
Returns 0 if the substr is empty.
```bash

```bash
***
Convert a char to its lowercase equivalent.
```bash
```bash
Convert a char to its lowercase equivalent.
```bash

```

```
```bash
...
Function
Convert a string to its uppercase equivalent.
```bash

```bash
***
Convert a string to its lowercase equivalent.
```bash

```bash
Computes the index of the first occurrence of the substr in the string. Returns the length of the string if the substr is not found.
Returns 0 if the substr is empty.
```bash

```bash
Convert a char to its lowercase equivalent.
```bash
```bash
Convert a char to its lowercase equivalent.
```bash

```bash
***
Function
Convert a string to its lowercase equivalent.
```bash

```bash
```

...

Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.

```
""bash
""
Convert a char to its lowercase equivalent.
""bash
""
Convert a char to its lowercase equivalent.
""bash
""
""bash
""
""bash
""
""bash
""
""bash
""
""bash
```

Function

Computes the index of the first occurrence of the substr in the $\underline{\text{string}}$. Returns the length of the $\underline{\text{string}}$ if the substr is not found. Returns 0 if the substr is empty.

```
""bash
""
Convert a char to its lowercase equivalent.
""bash
""
Convert a char to its lowercase equivalent.
""bash
""
""bash
""
""bash
```

Function

