

LU14.L02: Längenumrechner

```
def main():
    units_dict = {
        'Meter': 1,
        'Zentimeter': 100,
        'Meilen': 0.000621371,
        'Seemeilen': 0.000539957
    }
    value = read_float('Länge > ')
    from_unit = read_unit('Einheit von > ', units_dict)
    to_unit = read_unit('Einheit nach > ', units_dict)

    result = value * units_dict[to_unit] / units_dict[from_unit]
    print(f'{value} {from_unit} = {result} {to_unit}')

def read_float(prompt):
    """
    reads a floating point number
    :param prompt: the prompt to be shown to the user
    :return: the number entered by the user
    """
    while True:
        try:
            value = float(input(prompt))
            return value
        except ValueError:
            print('Bitte geben Sie eine Zahl ein')

def read_unit(prompt, units_dict):
    """
    reads a valid unit from the user
    :param prompt: the prompt to be shown to the user
    :param units_dict: a dictionary with the valid units as keys
    :return: the unit entered by the user
    """
    show_units(units_dict)
    while True:
        input_unit = input(prompt)
        if input_unit in units_dict:
            return input_unit
        else:
            print('Bitte wählen Sie eine bekannte Einheit aus')

def show_units(units_dict):
    """
```

```
shows the available units
:param units_dict: a dictionary with the valid units as keys
:return: None
"""

print('Verfügbare Einheiten: ', end='')
for unit in units_dict.keys():
    print(unit, end=', ')
print()
```

M319-C1G, M319-C1F, M319-C1E

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