
Klovve

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Klovve is a UI lib.

LICENSE

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UP-TO-DATE?

Are you currently reading from another source than the homepage? If you are in doubt whether your package is up-to-date, you should visit the project homepage and check that. You are currently reading the documentation for version 0.1.

USER MANUAL

3.1 Getting Started

3.1.1 Foo

This section is about getting ready.

API REFERENCE

4.1 klovve package

4.1.1 Subpackages

klovve.+tests namespace

Submodules

klovve.+tests.data module

klovve.+tests.view module

klovve.data package

Submodules

klovve.data.deps module

Dependency tracking for model properties.

Klovve applications typically do not need anything from here.

class `klovve.data.deps.DependencySubject`

Bases: `object`

Base class for objects that can attend on dependency tracking.

See `detect_dependencies()` and others.

`_flush_dependency_handlers(prop)`

Parameters `prop` (`klovve.data.model.PropertyBase`) –

Return type `None`

`_get_dependencies(prop)`

Parameters `prop` (`klovve.data.model.PropertyBase`) –

Return type `Iterable[tuple]`

`_set_dependencies(prop, new_dependencies)`

Parameters

- **prop** (`klovve.data.model.PropertyBase`) –
- **new_dependencies** (`Iterable[tuple]`) –

Return type `None`

`klovve.data.deps.defer_value_propagation()`

Defers the automatic refreshes on model property changes for a code block and applies them afterwards.

Use it for a `with` statement. Model property modifications do not instantly lead to updates on depending properties in that `with` block.

Computed properties will always return the right value on access, not an outdated one.

Return type `ContextManager[None]`

`klovve.data.deps.detect_dependencies(subject, prop, *, append=False)`

Detect dependencies for a code block.

Use it for a `with` statement.

Parameters

- **subject** (`klovve.data.deps.DependencySubject`) – The object to track dependencies for.
- **prop** (`klovve.data.model.PropertyBase`) – The property of that object to track dependencies for.
- **append** (`bool`) – If to append dependencies in this block to the known one (instead of replacing them).

Return type `ContextManager[None]`

`klovve.data.deps.no_dependency_tracking()`

Stops dependency tracking of the current computation for a code block.

Use it for a `with` statement. Model property accesses do not count as a dependency in that `with` block.

It will not influence dependency tracking for other computations inside yours (i.e. if you access a computed property, the dependency tracking of this one will not break).

Return type `ContextManager[None]`

`klovve.data.deps.notify_dependency(model, prop)`

Notify the dependency tracking about a new dependency for the current computation (usually after a property read access).

Parameters

- **model** (`klovve.data.model.Model`) – The new dependency model.
- **prop** (`klovve.data.model.PropertyBase`) – The dependency property in the model.

Return type `None`

`klovve.data.deps.notify_property_value_changed(model, prop)`

Notify the dependency tracking about the change of a model property.

Parameters

- **model** (`klovve.data.model.Model`) – The model that was changed.

- **prop** (*klovve.data.model.PropertyBase*) – The changed property in the model.

Return type bool

klovve.data.lists module

class *klovve.data.lists.List*(*content=()*)

Bases: *collections.abc.MutableSequence*, *klovve.data.observable_value.ObservableValue*

A list implementation that is observable (with *ListObserver* or as *klovve.data.observable_value.ObservableValue*) and has some other additional features.

Parameters *content* (*Iterable*) –

__correct_index(*i*)

Parameters *i* (*int*) –

Return type int

_abc_impl = *<_abc._abc_data object>*

_add_observer(*observer*, *, *initialize=True*)

Attach a *ListObserver* to this list.

For a model's list property, you have to use *klovve.data.model.Model.add_list_observer()* instead.

Parameters

- **observer** (*klovve.data.lists.ListObserver*) – The observer to attach.
- **initialize** (*bool*) – Whether to initialize the observer with the current content.

Return type None

_is_protocol = False

_remove_observer(*observer*)

Detach a *ListObserver* from this list.

For a model's list property, you have to use *TODO* instead.

Parameters *observer* (*klovve.data.lists.ListObserver*) – The observer to detach.

Return type None

insert(*i*, *v*)

S.insert(index, value) – insert value before index

move(*target_index*, *source_index*)

Move an element.

Parameters

- **target_index** (*int*) – The new index.
- **source_index** (*int*) – The old index.

Return type None

```
update(source_list, *, create_target_object_func=<function _update__default_create_target_object>,  
        update_target_object_func=<function _update__default_update_target_object>,  
        is_matching_target_object_func=<function _update__default_is_matching_target_object>)  
Update this list with the content of another one.
```

Parameters

- **source_list** (*Iterable*[*Any*]) – The content to apply to this list.
- **create_target_object_func** (*Callable*[[*Any*], *Any*]) – Function that creates a representation for a source object in the target list. Advanced feature.
- **update_target_object_func** (*Callable*[[*Any*, *Any*], *None*]) – Function that updates the representation for a source object in the target list. Advanced feature.
- **is_matching_target_object_func** (*Callable*[[*Any*, *Any*], *bool*]) – Function that checks if a particular object is the representation for a particular source object in the target list. Advanced feature.

```
class klovve.data.lists.ListObserver
```

Bases: *object*

Abstract base class for objects that can listen to changes on a *List*.

```
item_added(index, item)
```

Called when an item was added to the observed list.

Parameters

- **index** (*int*) – The position where the new item was inserted.
- **item** (*object*) – The new item.

Return type *None*

```
item_moved(from_index, to_index)
```

Called when an item was moved inside the observed list.

Parameters

- **from_index** (*int*) – The position of the element that was moved.
- **to_index** (*int*) – The new position of the moved element.

Return type *None*

```
item_removed(index)
```

Called when an item was removed from the observed list.

Parameters **index** (*int*) – The position of the item that was removed.

Return type *None*

```
item_replaced(index, item)
```

Called when an item was replaced by another one in the observed list.

Parameters

- **index** – The position where the item was replaced.
- **item** – The new item.

Return type *None*

```
klovve.data.lists._update__default_create_target_object(source_object)
```

Default function for target object creation in *List.update()*.

It just returns the source object.

Parameters `source_object` (*Any*) – The source object.

Return type `Any`

`klovve.data.lists._update__default_is_matching_target_object(target_object, source_object)`

Default function for target/source object comparison in `List.update()`.

It compares the objects with the `==` operator.

Parameters

- `target_object` (*Any*) – The target object.
- `source_object` (*Any*) – The source object.

Return type `bool`

`klovve.data.lists._update__default_update_target_object(target_object, source_object)`

Default function for target object updating in `List.update()`.

It does nothing.

Parameters

- `target_object` (*Any*) – The target object.
- `source_object` (*Any*) – The source object.

Return type `None`

klovve.data.model module

klovve.data.observable_value module

`class klovve.data.observable_value.ObservableValue(*args, **kwargs)`

Bases: `klovve.data.observable_value.ObservableValueProtocol`

`_abc_impl = <_abc._abc_data object>`

`_is_protocol = False`

`_trigger_changed()`

`add_changed_handler(func)`

`remove_changed_handler(func)`

`class klovve.data.observable_value.ObservableValueProtocol(*args, **kwargs)`

Bases: `Protocol`

`_abc_impl = <_abc._abc_data object>`

`_is_protocol = True`

`_is_runtime_protocol = True`

`_trigger_changed()`

Return type `None`

`add_changed_handler(func)`

Parameters **func** (*Callable*[[], None]) –

Return type None

remove_changed_handler(*func*)

Parameters **func** (*Callable*[[], None]) –

Return type None

klovve.data.reaction module

klovve.data.value_holder module

class klovve.data.value_holder.**ComputedValue**(*func, model, model_bind, pieces*)

Bases: *klovve.data.value_holder.ValueHolder*

_abc_impl = <_abc._abc_data object>

get_value()

is_settable()

set_value(*value*)

class klovve.data.value_holder.**OneWayBinding**(*model, prop_name, converter_in=None, converter_out=None*)

Bases: *klovve.data.value_holder.ValueHolder*

_abc_impl = <_abc._abc_data object>

get_value()

is_settable()

set_value(*value*)

class klovve.data.value_holder.**TwoWayBinding**(*model, prop_name, converter_in=None, converter_out=None*)

Bases: *klovve.data.value_holder.OneWayBinding*

_abc_impl = <_abc._abc_data object>

is_settable()

class klovve.data.value_holder.**ValueHolder**

Bases: *abc.ABC*

_abc_impl = <_abc._abc_data object>

abstract get_value()

Return type Any

abstract is_settable()

Return type bool

abstract set_value(*value*)

Parameters **value** (*Any*) –

Return type None

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4.1.2 Submodules

4.1.3 klovve._threading module

4.1.4 klovve.application module

class klovve.application.**Application**

Bases: abc.ABC

_abc_impl = <_abc._abc_data object>

abstract async sleep_until_stopped()

Return type None

abstract start()

Return type None

class klovve.application.**ApplicationInternal**(*, driver, view_spec, type_loader)

Bases: *klovve.application.Application*

Parameters

- **driver** (*klovve.drivers.Driver*) –
- **view_spec** (*klovve.view._TViewSpec*) –
- **type_loader** (*klovve.type_loader.TypeLoader*) –

__running_apps_changed_event = None

__running_loop()

_abc_impl = <_abc._abc_data object>

static **_running_apps_changed_event**()

run()

running_apps = []

async sleep_until_stopped()

async start()

class klovve.application.MainloopObjectProxy(*obj*)

Bases: object

klovve.application.call_with_kwargs(*func*, ****kwargs**)

klovve.application.call_with_kwargs_maybe_async(*func*, *mainloop*, ****kwargs**)

klovve.application.create_app(*view_spec*, *, *type_loader=None*)

Parameters

- **view_spec** (*klovve.view._TViewSpec*) –
- **type_loader** (*Optional* [*klovve.type_loader.TypeLoader*]) –

Return type *Application*

klovve.application.in_mainloop(*func*)

klovve.application.in_mainloop2(*func*)

4.1.5 klovve.debug module

class klovve.debug._Memory

Bases: object

_Memory__change_counter(*kind*, *by*)

Parameters

- **kind** (*str*) –
- **by** (*int*) –

Return type None

_Memory__decrement_counter(*kind*)

Parameters **kind** (*str*) –

Return type None

_Memory__increment_counter(*kind*)

Parameters **kind** (*str*) –

Return type None

property current

new_object_created(*obj*, *kind*)

Parameters **kind** (*str*) –

property since_startup

klovve.debug._print_loop()

4.1.6 klovve.type_loader module

```
class klovve.type_loader.DefaultTypeLoader(additional_packages)
    Bases: klovve.type_loader.TypeLoader
        Parameters additional_packages (Iterable[str]) –
        _abc_impl = <_abc._abc_data object>
        driver_type()
        model_type(name_tuple, *, driver)
        view_base_type(name_tuple)
        view_type(name_tuple, *, driver)
class klovve.type_loader.TypeLoader
    Bases: abc.ABC
        _abc_impl = <_abc._abc_data object>
        abstract driver_type()

        Return type Type[klovve.drivers.Driver]
        abstract model_type(name_tuple)

        Parameters name_tuple (Iterable[str]) –
        Return type Type[klovve.Model]
        abstract view_base_type(name_tuple)

        Parameters name_tuple (Iterable[str]) –
        Return type Type[klovve.View]
        abstract view_type(name_tuple, *, driver)

        Parameters
        • name_tuple (Iterable[str]) –
        • driver (klovve.drivers.Driver) –
        Return type Type[klovve.View]
klovve.type_loader._find_modules(name_tuple, kind, additional_packages)

Parameters
• name_tuple (Iterable[str]) –
• kind (str) –
• additional_packages (Iterable[str]) –
klovve.type_loader._try_find_type_in_module(module_name, typename)

Parameters
```

- `module_name (str)` –
- `typename (str)` –

`klovve.type_loader._try_find_type_per_name_tuple(name_tuple, kind, typename, additional_packages)`

Parameters

- `name_tuple (Iterable[str])` –
- `kind (str)` –
- `typename (str)` –
- `additional_packages (Iterable[str])` –

4.1.7 klovve.view module

`class klovve.view.BaseView(model, view_factory)`
Bases: `Generic[klovve.view._TGo]`

Parameters

- `model (klovve.view._TGo)` –
- `view_factory (ViewFactory)` –

`get_native(model, model_bind)`

Parameters

- `model (klovve.view._TGo)` –
- `model_bind (klovve.view._TGo)` –

Return type `object`

`get_native_stuff()`

`class klovve.view.BindFactory(model, twoway=True, converter_in=None, converter_out=None)`
Bases: `object`

`class klovve.view.ComposedView(*args, **kwargs)`
Bases: `klovve.view.BaseView`, `Generic[klovve.view._TGo]`

`computed(func)`

Return type `klovve.data.value_holder.ValueHolder`

`get_composition(model, model_bind, pieces)`

Parameters

- `model_bind (klovve.view._TGo)` –
- `pieces (klovve.view.ViewFactory)` –

Return type `klovve.view.ViewTreeNode`

`get_native(model, model_bind)`

exception klovve.view.ViewError

Bases: Exception

class klovve.view.ViewFactory(*type_loader, driver, TODO*)

Bases: object

Parameters

- **type_loader** ([klovve.type_loader.TypeLoader](#)) –
- **driver** ([klovve.drivers.Driver](#)) –
- **TODO** (*app*) –

class _Node(*view_factory, view_name*)

Bases: object

Parameters

- **view_factory** ([ViewFactory](#)) –
- **view_name** ([Iterable\[str\]](#)) –

create_view(*name_tuple, /, *, model=None, **kwargs*)

Parameters **name_tuple** ([Iterable\[str\]](#)) –

Return type [klovve.View](#)

class klovve.view.ViewTreeNode(*view_factory, name_tuple, model, data*)

Bases: object

Parameters **data** ([Iterable\[tuple\]](#)) –

__create_or_update_view(*old_tree, new_tree, model, parent_view, parent_view_prop_name*)

Parameters

- **old_tree** ([ViewTreeNode](#)) –
- **new_tree** ([ViewTreeNode](#)) –
- **model** ([klovve.Model](#)) –
- **parent_view** ([klovve.BaseView](#)) –
- **parent_view_prop_name** (*str*) –

create_or_update_view(*model, placeholder, old_tree*)

Parameters

- **model** ([klovve.Model](#)) –
- **old_tree** ([ViewTreeNode](#)) –

property **data**: [dict](#)

property **model**: [Optional\[klovve.Model\]](#)

property **name_tuple**: [Iterable\[str\]](#)

view()

Return type [klovve.BaseView](#)

`klovve.view._connect_value_holder(target_model, target_prop_name, value_holder)`

Parameters

- **target_model** (*klovve.Model*) –
- **target_prop_name** (*str*) –
- **value_holder** (*klovve.data.value_holder.ValueHolder*) –

Return type `object`

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