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# What is the idiomatic way to transform vector of structs to another vector of structs

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My function takes a `Vec` of structs as a parameter and places each of it's element into another vector as a new structure field:

```
fn new(cards: Vec<Card<_>>) -> Self {
    CardsConnection {
        edges: cards.iter().map(|c| CardsConnectionEdge {
            cursor: c.id.clone(),
            node: *c
        }).collect::<Vec<CardsConnectionEdge>>()
    }
}
```

I really want a move, so only new vector should own the `Card` instances. So since `map` got a reference, I want to dereference it to move the value, but I got the following error:

```
error[E0507]: cannot move out of '*c' which is behind a shared reference
  --> src/model.rs:74:23
   |
74 |         node: *c
   |         ^^ move occurs because '*c' has type 'model::Card<_>', which does not implement the 'Copy' trait

error: aborting due to previous error; 8 warnings emitted
```

While this non "functional-style" code works fine:

```
fn new(cards: Vec<Card<_>>) -> Self {
    let mut edges = Vec::<CardsConnectionEdge>::with_capacity(cards.len());

    for c in cards {
        edges.push(CardsConnectionEdge {
            cursor: c.id.clone()
            node: c
        })
    }

    CardsConnection {
        edges
    }
}
```

but looks a bit clumsy.

Is there a way to do the same thing using iterators or some kind of map function? Or what is the idiomatic way of solving this kind of problems?

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asked Nov 12 '20 at 20:18



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You are looking for `into_iter()`. The `iter` function iterates over the items by reference, while `into_iter` iterates over the items, moving them into a new scope.

So `for c in cards { ... }` is essentially the same as `cards.into_iter().for_each(|c| ...)`. Both move the elements of `cards` into the `... scope`.

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```
fn new(cards: Vec<Card<T>>) -> Self {
    CardsConnection {
        edges: cards
            .into_iter()
            .map(|c| CardsConnectionEdge {
                cursor: c.id.clone(),
                node: c,
            })
            .collect::<Vec<CardsConnectionEdge>>(),
    }
}
```

[Reference: iter vs. into\\_iter](#)

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edited Nov 12 '20 at 20:52

answered Nov 12 '20 at 20:41



[Ibraheem Ahmed](#)

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You could also consider implementing `From<Card>` for `CardsConnectionEdge`. This would allow to simplify the conversion code to `cards.into_iter().map(From::from).collect()` (no explicit type hints needed).

– [Sven Marnach](#)

Nov 12 '20 at 21:02

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