Conceptual Sketch for Bluber

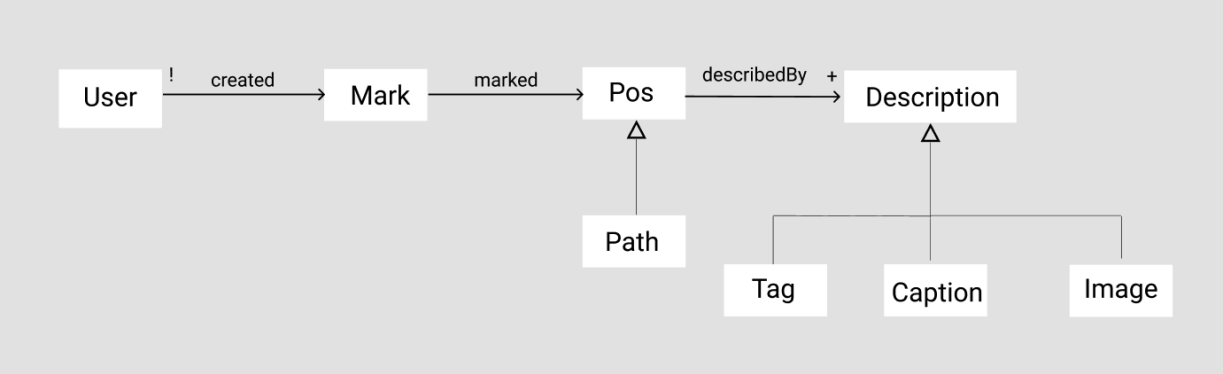
Concepts

Marking Concept

Purpose

To add descriptions about conditions of sections or intersections on roads that contain bike lanes.

State



Actions

create(u: User, pos: { start: Pos, end: Pos }, img: Image, tag: Tag, cap: Caption, **out**: Mark)

mark := fresh Mark
mark.pos = pos
mark.img = img
mark.tag = tag
mark.cap = cap

modify(u: User, m: Mark, new_props: {start: Pos, end: Pos, img: Image, cap: Caption, tag: Tag)

m.{start, end, img, tag, cap} = new_props

delete(u: User, mark: Mark)

u.creates -= u -> mark

Operational principle

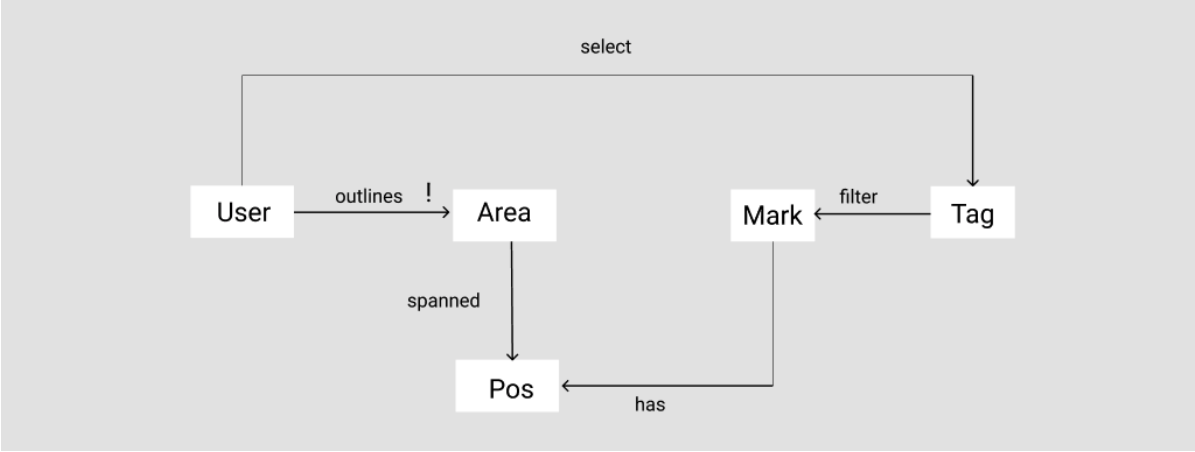
after create(u, pos, img, tag, cap, mark), modify(u', mark, new_properties) => u = u'
after delete(u, mark), no modify(u, mark, new_properties)

Plan Concept: [Marking]

Purpose

To know paths and intersections in an area that have some inconveniences to find most optimal bike path.

State



Actions

getMarksInSpannedArea(u: User, pos1: Pos, pos2: Pos, **out** mark: []Mark):
polygon := circle with pos1 and pos2 on the diameter : **set** Pos
result := all mark: marks | mark.marked in polygon

filterByTag(u: User, marks: []Mark, tag: Tag, **out** result: []Mark):
u.selects + {tag}
result := all mark: marks | mark.marked.describedBy = tag

removeTag(u: User, tag: Tag, marks: []Mark, **out** result: []Mark):
u.selects -= {tag}
result := all mark: marks | mark.marked.describedBy in u.selects

clearFilter(u: User, marks: []Mark, **out** result: []Mark):
u.selects := []
result:= marks

Operational Principle

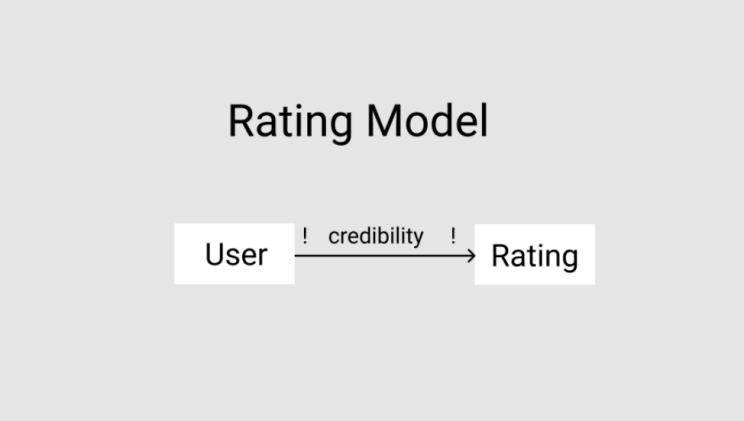
after getMarksInSpannedArea(u1, p1, p1, **out** marks1); for all **t1** in Tags
filterByTag(u1,marks1, **t1**, **out** marks2)
after filterByTag(u, marks1, tag, **out** marks') then clearFilter(u, marks1, **out** marks'')
=> marks1 = marks''
after filterByTag(u, marks1, tag, **out** marks') then removeTag(u, tag, marks1, **out** marks'')
=> marks'' = marks1

Rating:

Purpose

Metric for measuring a user's credibility as an information sharer on a scale of 1-5, 1 being least reliable and 5 being highly reliable.

State



ratings: User -> ! Nat
Rating -> !Float

Actions

addRating(u: User, n: Nat):
    x := #u.ratings
    u.credibility := (u.credibility * x + n) / (x + 1)

Operational Principle

ratings := set {a1, … , an}
addRating (u,a1), addRating(u,a2), … addRating(u,an) => u.credibility = (a1+ a2 + … + an) / n

Discussions

What key purposes and social needs does Bluber serve and why do they matter?

It is a platform where cyclists can help each other to navigate through city bike lanes safer by indicating inconveniences which other users may have faced during their trips. Inconveniences may include high traffic, blocked/closed bike lanes due to construction, or restaurants obstructing the lanes.

Addresses the need for safety when cycling by giving (nearly) up-to-date information on the conditions of the city bike lanes. People can benefit from other users' interactions.

In what ways is Bluber more than just CRUD?

Bluber is more than just CRUD in that we have other functionalities, such as our app's ability to read in data from just what a user is inputting. We will be utilizing map data from the Blue Bikes database as well as determining roads and intersections from Google Maps and the Cambridge dataset from 6.009. As a result, we will have a lot more data to filter through and allow the user to mark paths based on this, rather than base our data on simply what the user creates through marks.

How does Bluber involve at least one concept that is not already widely used?

Bluber involves at least one concept that is not already widely used in the way we define marking (posting). Based on the current status quo social media, posts are typically composed of words or images. In our case, a post, which we call a mark, is defined as a pin associated with an image, tags and or a caption. Marking here encompasses an interaction of a user with a map to guide their own map, associated with tags. As a result, these marks now have the ability to be filtered accurately by these tags, which is not widely used through current social platforms.

In comparison with other platforms that use the map feature, **Bluber** is unique in the sense that when a user searches for a place, it does not just show details about that specific place, but gives information about the surrounding area, that is, the state of the roads and intersections around the searched area which depends on the markings made by other users.

What particular design areas are likely to be challenging and why?

Representing map data in such a way that users can easily manipulate it. How can we make the labeling operational principle intuitive to the user? How do we incentivize the user to interact with the app since it is solely based on interactions?