

Projektna naloga

(RentRide)

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# **Analiza in načrt jezika**

**Osnovni elementi in sintaksa**

carRide: Osnovni element, celotna pot

road: pot, ki jo avto prepotuje

car: lokacija avta, ki bo prikazana na zemljevidu

start: štartna točka avta

End: kočna točka avta

crossSection: vmesna križišča na poti če so

roundAbout: vmesna krožišča na poti če so

gasStation: bencinske postaje v bližini poti, opcijsko

electricalStation: električne postaje v bližini poti, opcijsko

parking: parkirišča v bližini končne točke, opcijsko

passenger: vstopna in izstopna točka morebitnega sopotnika

Namen jezika je vnos in prikaz poti na zemlejvidu s pomočjo konstruktov »road«, »car«, »start« in »end« ter s pomočjo poljubnih konstruktov kot so »crossSection«, »roundAbout«, »gasStation«, »electricalStation«, »parking« in »passanger«. S pomočjo vseh teh elementov lahko prikažemo celotno pot avta od začetka do konca, vsa vmestna križišča in krožišča, morebitne bencinske oz. električne postaje, parkirišča v bližini ciljne točke in vstopne in izstopne točke morebitnih sopotnikov. Podprta je tudi možnost deklaracija in uporaba spremenljivk in osnovnih matematičnih izrazov.

**Definicija BNF jezika**

CAR\_RIDE ::= "carRide" string "{" DECLARATIONS ROAD CAR START FINISH CROSS ROUND GAS ELECTRICITY PARKING PASSENGERS "}"

DECLARATIONS ::= DECLARATION DECLARATIONS | ε

DECLARATION ::= VAR\_DECL | POINT\_DECL

VAR\_DECL ::= var "=" EXPR ";"

POINT\_DECL ::= "let" var "=" POINT ";"

ROAD ::= "road" "{" PATH "};"

PATH ::= LINE PATH | BEND PATH | ε

LINE ::= "line (" POINT "," POINT ");"

BEND ::= "bend (" POINT "," POINT, int ");"

POINT ::= "(" EXPR "," EXPR ")"

CAR ::= "car" string "{" POINT ";" "id :" int "};"

START ::= "start" "{" POINT "};"

FINISH ::= "finish" "{" POINT "};"

CROSS ::= "crossSection" string "{" BOX "};" CROSS | ε

BOX ::= "box (" POINT ", " POINT ");"

ROUND ::= "roundAbout" string "{" CIRC "};" ROUND | ε

CIRC ::= "circ (" POINT "," real ");"

GAS ::= "gasStation" string "{" POINTS FILTER "};" | ε

POINTS ::= POINT ";" POINTS | ε

FILTER ::= "let" var "=" "neigh" "(" POINT "," real ");" FOREACH

FOREACH ::= "foreach" var "in" "roi" "{" "highlight" var "}"

ELECTRICITY ::= "electricStation" string "{" POINTS FILTER "};" | ε

PARKING ::= "parking" string "{" POINTS FILTER "};" | ε

PASSENGERS ::= PASSENGER PASSENGERS | ε

PASSENGER ::= "passenger" string "{" START FINISH "};"

EXPR ::= ADDITIVE

ADDITIVE ::=MULTIPLICATIVE ADDITIVE'

ADDITIVE' ::= "+" MULTIPLICATIVE ADDITIVE'

| "-" MULTIPLICATIVE ADDITIVE' | ε

MULTIPLICATIVE ::= PRIMARY MULTIPLICATIVE'

MULTIPLICATIVE' ::= "\*" PRIMARY MULTIPLICATIVE'

| "/" PRIMARY MULTIPLICATIVE' | ε

PRIMARY ::= real | var | "(" ADDITIVE ")"

int = [0-9]+

real = -?\d+\.\d+

var = {A,...,Z,a,...,z}+{0,...,9}\*