

Projektna naloga

(ni imena?)

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Kazalo

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# **Analiza in načrtovanje jezika**

## Konstrukti za opis teka

* race - osnovni element celotnega teka
* path - pot, ki jo pretečejo udeleženci
* start - točka, kjer se tek začne
* finish - točka, kjer se tek konča
* checkpoint - postaja na trasi, kjer se meri čas in preverja udeleženčeva prisotnost
* food station - postaja na trasi, kjer udeleženci dobijo hrano
* water station - postaja na trasi, kjer udeleženci dobijo vodo
* medical station - postaja na trasi, kjer udeleženci dobijo zdravstveno pomoč
* toilets - postaja na trasi, kjer udeleženci lahko uporabijo stranišče

Slika, ki vsebuje besede zemljevid, besedilo, diagram, načrt

Opis je samodejno ustvarjen

Slika - Primer teka

## Definicija BNF jezika

Race ::= Path string "{" Start Finsih Checkpoint Food\_station Water\_station Medical\_station Toilets "}"

Path ::= "Path" "{" \_Path "}"

\_Path ::= Point, \_Path | Point

Box ::= "box" "(" Point, Point ")"

Circle ::= "circ" "(" Point, number ")"

Point ::= "(" number "," number ")"

Start ::= "start" "{" Point "}"

Finsih ::= "finsih" "{" Point "}"

Checkpoint ::= "checkpoint" "{" Circle "}" Checkpoint | ε

Food\_station ::= "food station" "{" Box "}" Food\_station | ε

Water\_station ::= "water station" "{" Box "}" Water\_station | ε

Medical\_station ::= "medical station" "{" Box "}" Medical\_station | ε

Toilets ::= "toilets" "{"Box "}" Toilets | ε

For ::= "for" "(" string "=" Expression ";" Condition ";" Increment ")" Statement

If ::= "if" "(" Condition ")" "{" Statement "}" "else" "{" Statement "}"

List ::= "[" ListValues "]"

Procedure ::= "procedure" string "(" Parameters ")" "{" statements "}" "end"

Assign ::= string "=" Expression

Parameters ::= string Parameters | ε

Statements ::= Statement Statements | ε

Statement ::= Assign | For | If | Procedure\_call

Procedure\_call ::= string "(" Arguments ")"

ListValues ::= Value | Value "," ListValues

Value ::= number | string | Point | Variable

Arguments ::= Expressions

Expressions ::= Expression Expressions | ε

Expression ::= number | Variable | List | Procedure\_call | Operation

Increment ::= string operator | string operator Expression

Condition ::= Expression comparison\_operator Expression

Operation ::= Expression operator Expression

Variable ::= let string

comparison\_operator ::= "<" | ">" | "==" | "!=" | "<=" | ">="

operator ::= "+" | "-" | "\*" | "/" | "%" | "++" | "--"

string ::= [a-zA-Z]+

number ::= [0-9]+

## Testni primeri

Primer 1

Run "Mariborski tek" {

let a = 10

Path {

for (let i=0; i<a; i++) {

if (i % 2 == 0) {

(i, i%2)

} else {

(i, i)

}

}

}

start { point (0,0) }

finish { point (10,10) }

checkpoint { circ ( (3,3), 10) }

checkpoint { circ ( (7,7), 10) }

food station { box( (0,0), (1, 1)) }

water station { box( (9,9), (10, 10) }

medical station { box( (2,2), (3, 3) }

toilets { box( (6,6), (7, 7) }

}

Primer 2

Run "Celjski tek" {

let list = [(1,1), (2,2), (3,3), (4,4)]

Path {

for (let i=0; i<a; i++) {

list[i]

}

}

start { point (0,0) }

finish { point (4,4) }

checkpoint { circ ( (3,3), 10) }

water station { box( (2,2), (10, 10) ) }

}

Primer 3

Run "Ptujski tek" {

Path {

for (let i=0; i<10; i++) {

(i, i+3)

}

}

start { point (0,0) }

finish { point (10,13) }

checkpoint { circ ( (5,5), 10) }

food station { box( (5,5), (6, 6)) }

}

Primer 4

Run "tek Koper" {

Path {

for (let i=0; i<5; i++) {

(i, i)

}

}

start { point (0,0) }

finish { point (4,4) }

}

Primer 5

Run "tek Portorož" {

Path {

(0,0),

(1,2),

(3,2),

(4,4),

(5,6),

(7,8),

(9,9)

}

start { point (0,0) }

finish { point (9,9) }

checkpoint { circ ( (5,6), 10) }

}

Primer 6

Run "Ljubljanski tek" {

Path {

for (let i=0; i<10; i++) {

for (let j=0; j<10; j++) {

if (i % 2 == 0) {

(i, j)

}

else {

(i, -j)

}

}

}

}

start { point (0,0) }

finish { point (10,10) }

}

Primer 7

Run "tek Bohinj" {

Path {

for (i=0; i<100; i++) {

(i, i)

}

}

start { point (0,0) }

finish { point (100,100) }

draw\_water\_station(0, 5, 100)

procedure draw\_water\_station (start\_of\_race, repetition, end\_of\_race) {

for (let i=start; i<end; i++) {

if (i % repetition == 0) {

water station { box( (i,i), (i+1,i+1))}

}

}

}

}

Primer 8

Run "tek Bled" {

Path {

for (let i=0; i<100; i++) {

(i, i)

}

}

start { point (0,0) }

finish { point (10,10) }

for (let j=0; j<100; j++) {

if (j % 10) {

check point { circ((j,j), 10)}

}

}

}

Primer 9

Run "tek napaka1" {

start { point (0,0) }

finish { point (10,10) }

}

Primer 10

Run "tek napaka2" {

Path {

for (let i=0; i<10; i++) {

(i, i)

}

}

start { point (0,0) }

}