



KI-Challenge: Round Four

Patrick Schäfer

patrick.schaefer@hu-berlin.de

Semesterprojekt: Implementierung eines Brettspiels, WS 18/19

Agenda

- Today, 13:15
 - Competition
- Monday, 11.2.19: Second Milestone Review

Second Milestone Review

- Präsentation der KI-Idee am 11.2., **13:30 Uhr**:
 - Kurzpräsentation (5 Minuten) der KI-Idee pro Team
 - Bestimmung des Gewinners des zweiten Meilensteins
- Struktur der Präsentation (**Folien**):
 1. Welcher KI-Ansatz wurde gewählt
(Reinforcement Learning, Monte Carlo, Rule-Based, ...)
 2. Technische Umsetzung
(z.B. Besonderheiten, Features, Alleinstellungsmerkmale, Architektur, etc.)
- Folien sollen auf dem Projekttag durch ein Team-Mitglied erneut gezeigt werden:
 - Donnerstag, 11.4.2019, 14-17 Uhr, im Humboldt-Kabinett.

Competitors

Team Black :
AI-black

Team Red :
MaJa+ToM

Team Blue :
Blue

Team Green :
GreenRFA

Wie sind die KI-Spieler implementiert

	Programmiersprache	KI-Idee
Team Green	C#	3 Zielkarten behalten Zielkarten erfüllen Manchmal nachziehen Steiner Tree mit mehreren Cores
Team Blue	C#	Wagenkarten ziehen Strecke, absteigend nach Länge sortiert, bauen
Team Red	C#	Günstigsten Zielkarten behalten (am wenigsten Punkte) Karten ziehen passend zur Strecke Dijkstra, kürzeste Strecke bauen Strecken priorisieren Zielkarten nachziehen
Team Black	C#	OneStepAgent 2 Zielkraten behalten Erfüllen von Zielkraten Zielkarten vorsichtiger nachziehen Längste Strecke verlängern

Vorrunde



Team Black :
AI-black

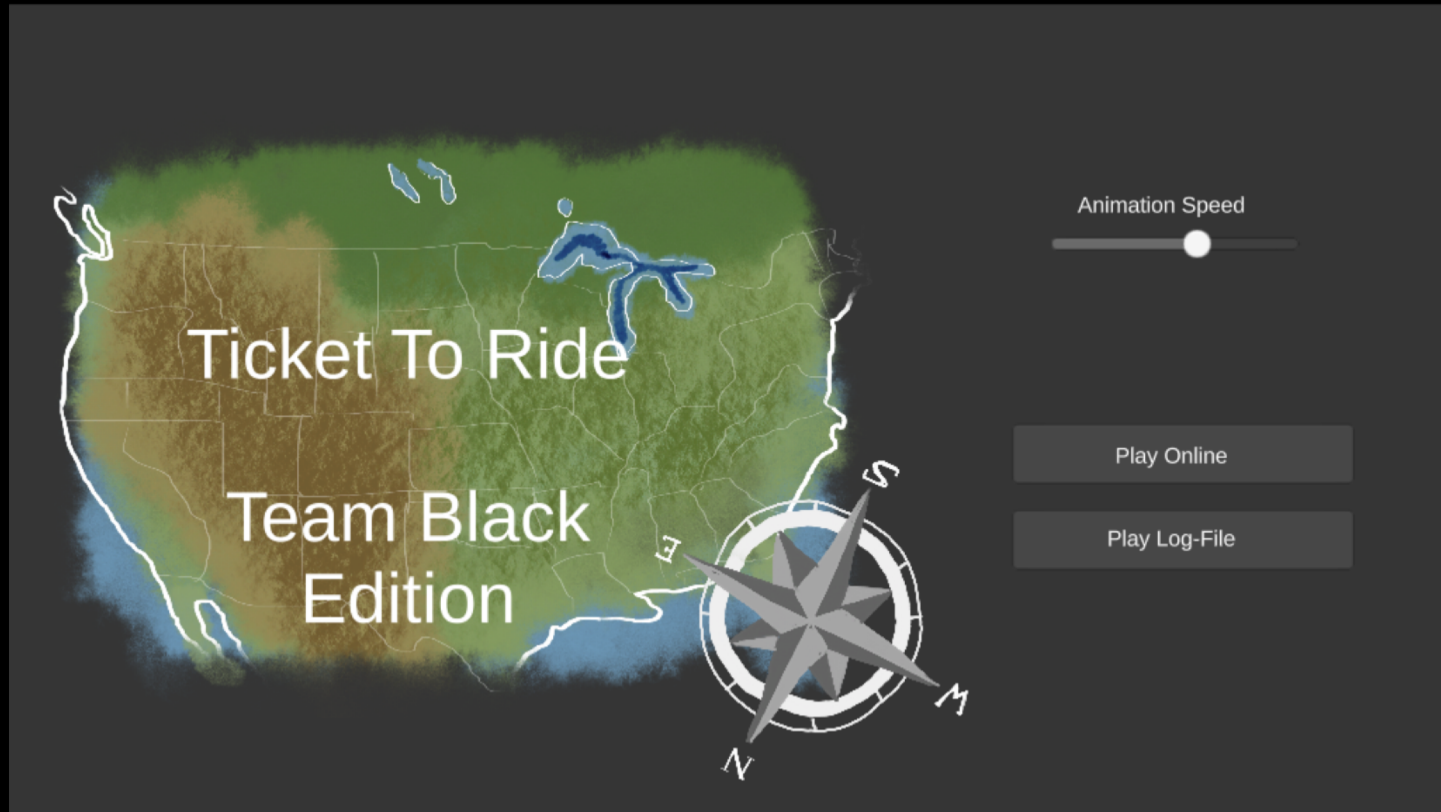
Team Green :
GreenRFA



Team Red :
MaJa+ToM

Team Blue :
Blue

Vorrunde



Vorrunde



Team Black :
AI-black

Team Green :
GreenRFA

=====(AI-black)=====

AVG Longest Route: 33.86

AVG Score: **105.68**

Winrate: **53.0%.**

AVG Claimed Tickets: 2.31

AVG Not Claimed Tickets: 0.06

AVG Played Turns: 40.24

=====(GreenRFA)=====

AVG Longest Route: 26.21

AVG Score: **105.91**

Winrate: **47.0%.**

AVG Claimed Tickets: 3.18

AVG Not Claimed Tickets: 0.16

AVG Played Turns: 40.24

Vorrunde



Team Blue :
Blue

Team Red :
MaJa+ToM

===== (Blue) =====

AVG Longest Route: 16.51

AVG Score: **92.16**

Winrate: **89.0%**.

AVG Claimed Tickets: 0.0

AVG Not Claimed Tickets: 2.0

AVG Played Turns: 37.09

===== (MaJa+ToM) =====

AVG Longest Route: 22.77

AVG Score: **52.91**

Winrate: **11.0%**.

AVG Claimed Tickets: 2.55

AVG Not Claimed Tickets: 2.67

AVG Played Turns: 37.09

Finale



Platz 3:

Team Green :
GreenRFA

Team Red :
MaJa+ToM

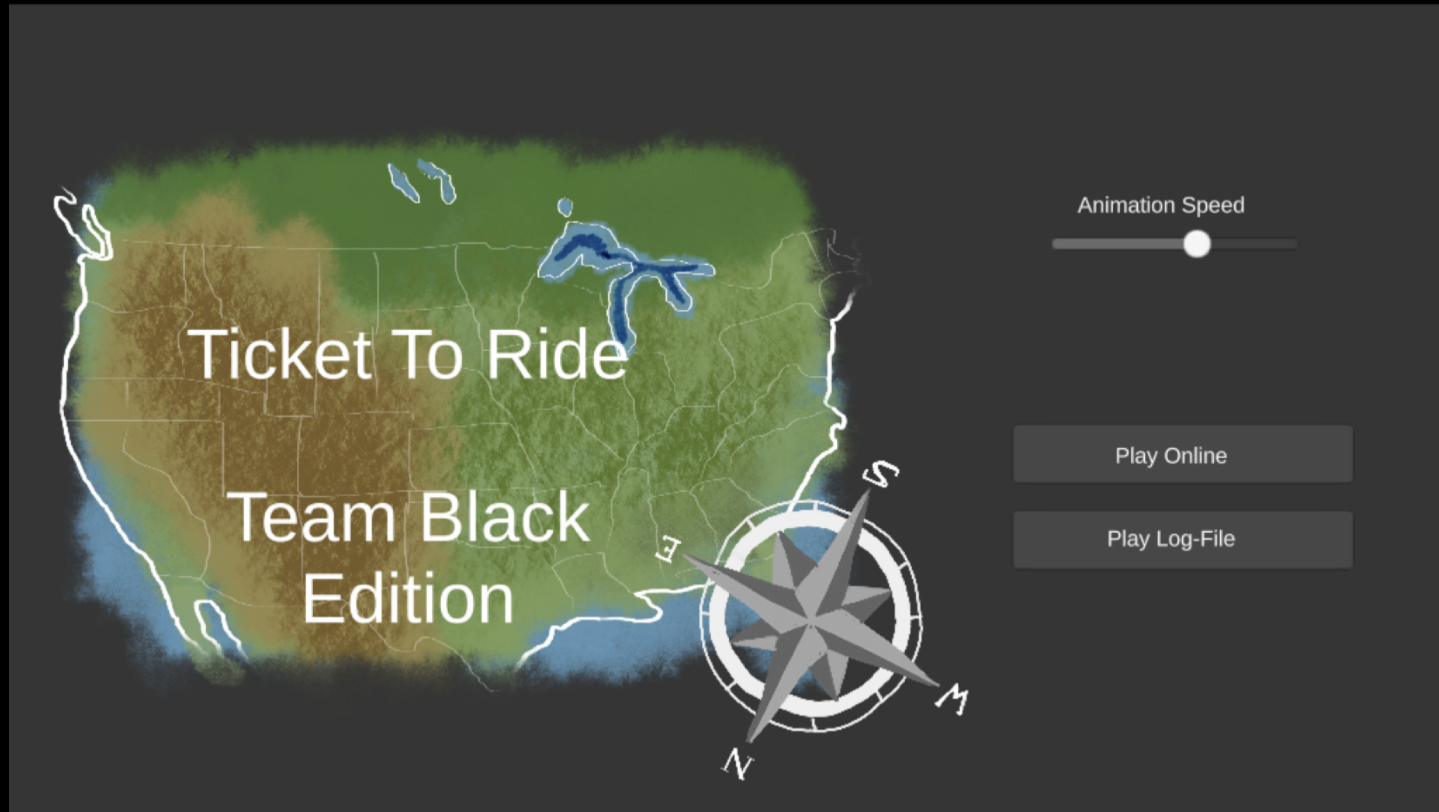


Finale:

Team Black :
AI-black

Team Blue :
Blue

Kleines Finale



Spiel um Platz 3



Team Red :
MaJa+ToM

Team Green :
GreenRFA

===== (MaJa+ToM) =====

AVG Longest Route: 23.0

AVG Score: 90.0

Winrate: 30.0%.

AVG Claimed Tickets: 3.3

AVG Not Claimed Tickets: 0.9

AVG Played Turns: 41.2

===== (GreenRFA) =====

AVG Longest Route: 27.6

AVG Score: 115.6

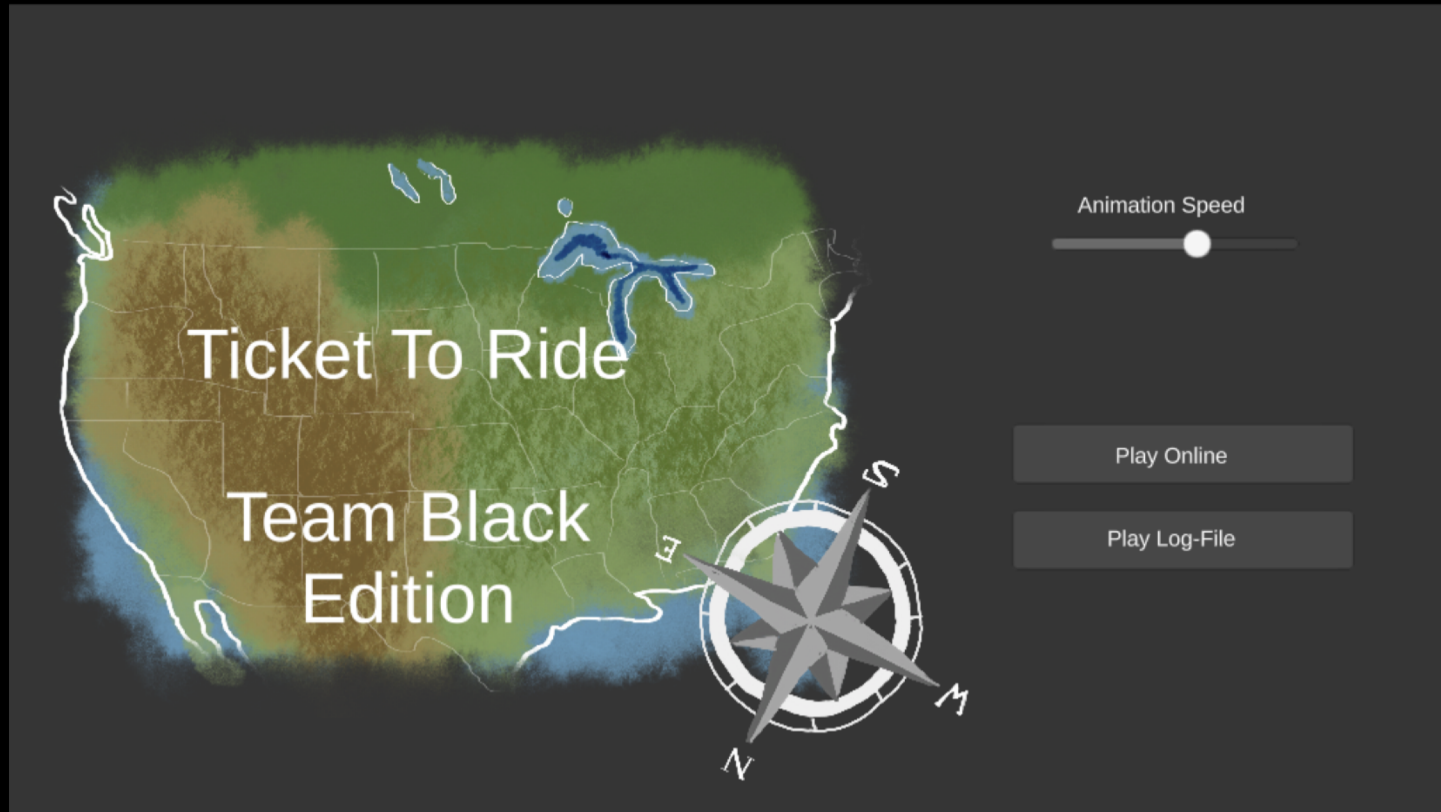
Winrate: 70.0%.

AVG Claimed Tickets: 3.6

AVG Not Claimed Tickets: 0.0

AVG Played Turns: 41.2

Finale



Finale



Team Black :
AI-black

Team Blue :
Blue

=====(AI-black)=====

AVG Longest Route: 31.8

AVG Score: 100.1

Winrate: 70.0%.

AVG Claimed Tickets: 2.5

AVG Not Claimed Tickets: 0.2

AVG Played Turns: 37.13

=====(Blue)=====

AVG Longest Route: 14.7

AVG Score: 88.1

Winrate: 30.0%.

AVG Claimed Tickets: 0.0

AVG Not Claimed Tickets: 2.0

AVG Played Turns: 37.13

KI-Challenge: Punktestand

	Team Green	Team Blue	Team Red	Team Black
Turnier am 14.1. (1-1-2)	-	-	-	-
Turnier am 21.1. (1-2-3)	3	-	1	2
Turnier am 28.1. (2-3-5)	3	2	-	5
Turnier am 4.2. (3-5-8)	3	5	-	8
Turnier am 11.2. (5-8-13)				
Gesamt	9	7	1	15

Fehler Team Green

```

tickettoride_server — ue_inforet@9d6e12ac-b84c-4af2-c337-9718e9e5f772: ~ — ssh • ssh inforet — 110x43
...ssh • ssh inforet ... ...ssh • ssh inforet ... ...tr-java — -bash ... ...ser/tex — -bash ... ...llenge — -bash ... .../black — -bash ... ...772: ~ — -bash ... +

top - 12:16:55 up 221 days, 44 min, 2 users, load average: 3.53, 4.12, 4.62
Tasks: 382 total, 4 running, 377 sleeping, 0 stopped, 1 zombie
%Cpu(s): 15.0 us, 1.8 sy, 0.0 ni, 83.2 id, 0.0 wa, 0.1 hi, 0.0 si, 0.0 st
KiB Mem : 65536000 total, 58618328 free, 6917672 used, 0 buff/cache
KiB Swap: 65536000 total, 61788392 free, 3747608 used. 58618328 avail Mem

  PID USER      PR  NI   VIRT   RES    SHR  S  %CPU  %MEM     time  command
  73253 root        1    0 119236 32592    0 R   97.0  0.0   87:30.75 dotnet ai_red.dll
  68601 root        1    0 120552 33908    0 R   97.0  0.1   89:13.35 dotnet ai_red.dll
  60334 root        1    0 120396 33752    0 R   97.0  0.1   95:49.28 dotnet ai_red.dll
    6127 root        1    0 268148 221564    0 S   46.8  0.3
    9090 root        1    0 235272 98760    0 S    1.9  0.2   1:46.43 /lib/systemd/systemd-journald
    6132 root        1    0 119948 40312    0 S    1.4  0.1   0:00.49 dotnet ai_black.dll
    6078 root        1    0 110356 63640    0 S    1.1  0.1   0:01.15 java -jar ttr-server-0.94.jar 2 false
    5624 ue_inforet+ 1    0 41356 4880    0 R    0.8  0.0   0:00.23 top
    9462 syslog      59   0 38520 5176    0 S    0.5  0.0
  99976 root        1    0 125500 45908    0 S    0.3  0.1   1:00.99 dotnet exec ai_green.dll
  11219 root        1    0 123440 43868    0 S    0.2  0.1   1:44.57 dotnet exec ai_green.dll
  94760 root        1    0 128292 48604    0 S    0.2  0.1   1:52.67 dotnet exec ai_green.dll
  98599 root        1    0 126688 46952    0 S    0.2  0.1   1:27.86 dotnet exec ai_green.dll
  13173 root        1    0 127064 47448    0 S    0.2  0.1   1:08.35 dotnet exec ai_green.dll
  97779 root        1    0 123200 43524    0 S    0.2  0.1   1:29.03 dotnet exec ai_green.dll
  96073 root        1    0 127428 47824    0 S    0.2  0.1   1:27.46 dotnet exec ai_green.dll
  15049 root        1    0 129500 49904    0 S    0.2  0.1   0:54.39 dotnet exec ai_green.dll
  91322 root        1    0 126560 42452    0 S    0.1  0.1   1:08.29 dotnet exec ai_green.dll
    2323 root        1    0 125124 45516    0 S    0.1  0.1   1:29.50 dotnet exec ai_green.dll
    8097 root        1    0 117656 38104    0 S    0.1  0.1   1:21.86 dotnet exec ai_green.dll
  95411 root        1    0 125152 45444    0 S    0.1  0.1   1:11.92 dotnet exec ai_green.dll
    1982 root        1    0 123328 43660    0 S    0.1  0.1   1:36.74 dotnet exec ai_green.dll
    1704 root        1    0 123464 43740    0 S    0.1  0.1   1:16.74 dotnet exec ai_green.dll
  91467 root        1    0 125028 41036    0 S    0.1  0.1   0:50.26 dotnet exec ai_green.dll
  90884 root        1    0 127168 41588    0 S    0.1  0.1   1:21.60 dotnet exec ai_green.dll
  93424 root        1    0 169892 90196    0 S    0.1  0.1   1:13.14 dotnet exec ai_green.dll
    9566 root        1    0 123272 43684    0 S    0.1  0.1   1:15.62 dotnet exec ai_green.dll
  72060 root        1    0 125484 45748    0 S    0.1  0.1   1:02.93 dotnet exec ai_green.dll
    225 root        1    0 120524 40872    0 S    0.1  0.1   1:30.04 dotnet exec ai_green.dll
    2946 root        1    0 125108 45512    0 S    0.1  0.1   1:00.15 dotnet exec ai_green.dll
  94985 root        1    0 128292 48632    0 S    0.1  0.1   1:21.39 dotnet exec ai_green.dll
  12810 root        1    0 125396 45804    0 S    0.1  0.1   1:16.27 dotnet exec ai_green.dll
    9191 root        1    0 124768 45152    0 S    0.1  0.1   1:11.68 dotnet exec ai_green.dll
  11654 root        1    0 123340 43716    0 S    0.1  0.1   1:21.58 dotnet exec ai_green.dll
  93604 root        1    0 125492 45780    0 S    0.1  0.1   1:01.31 dotnet exec ai_green.dll
  12382 root        1    0 125756 46196    0 S    0.1  0.1   1:36.07 dotnet exec ai_green.dll
  
```

Fehler Team Red

[ActionDispatcher] i: Info;turnType:DrawPassengerCars;player:Red;success:True;drawnCard:White;hiddenDeck:False;...:

[ActionDispatcher] r: Request;turnType:**DrawPassengerCars**;player:Red

[ActionDispatcher] i: Info;turnType:**DrawDestinationTickets**;player:Red;success:False;errorCode:**NotPlayersTurn**

Something went wrong. Info;turnType:DrawDestinationTickets;player:Red;success:False;errorCode:NotPlayersTurn

[ActionDispatcher] r: Request;turnType:Turn;player:Red

[ActionDispatcher] i: Info;turnType:**DrawPassengerCars**;player:Red;success:True;drawnCard:Yellow;hiddenDeck:False;...:

[ActionDispatcher] r: Request;turnType:**DrawPassengerCars**;player:Red

[ActionDispatcher] i: Info;turnType:**DrawDestinationTickets**;player:Red;success:False;errorCode:**NotPlayersTurn**

Something went wrong. Info;turnType:DrawDestinationTickets;player:Red;success:False;errorCode:NotPlayersTurn

[ActionDispatcher] r: Request;turnType:Turn;player:Red

[ActionDispatcher] i: Info;turnType:**ClaimRoute**;player:Red;success:True;d1:Raleigh;d2:Washington;passengerCarColors:

[ActionDispatcher] i: Info;turnType:**DrawDestinationTickets**;player:Red;success:False;errorCode:**NotPlayersTurn**

Something went wrong. Info;turnType:DrawDestinationTickets;player:Red;success:False;errorCode:NotPlayersTurn

[ActionDispatcher] r: Request;turnType:Turn;player:Red

[ActionDispatcher] i: Info;turnType:**ClaimRoute**;player:Red;success:True;d1:SaintLouis;d2:Nashville;passengerCarColors:

[ActionDispatcher] i: Info;turnType:**DrawDestinationTickets**;player:Red;success:False;errorCode:**NotPlayersTurn**

Something went wrong. Info;turnType:DrawDestinationTickets;player:Red;success:False;errorCode:NotPlayersTurn

2nd Milestone Goals

	Team Green	Team Blue	Team Red	Team Black
Erste lauffähige KI	21.1.	21.1.	21.1.	21.1.
60 Punkte im Schnitt	21.1.	28.1.	() 90.2 (2.2.)	21.1.
80 Punkte im Schnitt	21.1.	28.1.	() 90.2 (2.2.)	21.1.
100 Punkte im Schnitt	103.19, 72% (4.2.)	83% (4.2.)	X	109.75, 84% (4.2.)
Kommentare	Prozess beendet nicht nach Benchmark?	Alle Milestones erreicht	Hängt oft (4.2.): [ERROR] Game got stuck. Aborting	Alle Milestones erreicht

Gegen HU-KI

2-3 besten Zielkarten behalten
Nie nachziehen
Sobald Zielkarten erfüllt, lange Strecken
passend zu Handkarten bauen

Team HU

Team Black :
AI-black

AVG Longest Route: 31.83
AVG Score: 98.15
Winrate: 47.0%.
AVG Claimed Tickets: 2.28
AVG Not Claimed Tickets: 0.07

AVG Longest Route: 33.55
AVG Score: 98.19
Winrate: 53.0%.
AVG Claimed Tickets: 2.15
AVG Not Claimed Tickets: 0.0

Team Green :
GreenRFA

AVG Longest Route: 24.86
AVG Score: 92.53
Winrate: 42.0%.
AVG Claimed Tickets: 2.86
AVG Not Claimed Tickets: 0.38

AVG Longest Route: 31.64
AVG Score: 100.08
Winrate: 58%.
AVG Claimed Tickets: 2.2
AVG Not Claimed Tickets: 0.0

Team Blue :
Blue

AVG Longest Route: 14.7
AVG Score: 87.0
Winrate: 20.0%.
AVG Claimed Tickets: 0.0
AVG Not Claimed Tickets: 2.0

AVG Longest Route: 32.4
AVG Score: 97.4
Winrate: 80.0%.
AVG Claimed Tickets: 2.1
AVG Not Claimed Tickets: 0.0

Team Red :
MaJa+ToM

AVG Longest Route: 24.0
AVG Score: 68.0
Winrate: 10.0%.
AVG Claimed Tickets: 3.1
AVG Not Claimed Tickets: 1.8

AVG Longest Route: 32.3
AVG Score: 103.6
Winrate: 90.0%.
AVG Claimed Tickets: 2.2
AVG Not Claimed Tickets: 0.0

Free For All - Turnier

Projekttag

- Für den Projekttag haben wir jetzt als Termin festgelegt:
 - Donnerstag, 11.4.2019, 14-17 Uhr, im Humboldt-Kabinett.
- Präsentation des Semesterprojekts
- Pro Team ein Teammitglied, das die Milestones präsentiert
- Zuhörerkreis: einige Schulen (Grund- und Leistungskurse)