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Varian Medical Hungary

Radiotherapy Treatment Optimization

Every week, radiotherapy centers face the complex task of scheduling hundreds of treatment sessions amongst the available linear accelerators. With the increase in cancer patient numbers, manually creating a feasible and efficient schedule has shown to be a difficult, time-consuming task. It is utter of importance to have maximized utilization of linear accelerators or with other words a linear accelerator in stand-by is a missed opportunity to treat a patient.

Solve our challenge and join us
FIGHTING FOR A WORLD WITHOUT FEAR OF CANCER!

Introduction to the challenge

Create an application which helps doctors with optimization of Radiation Therapy Treatments - even distribution of the linear accelerator's load. Physician relief with a modern, streamlined UI, UX appointment system.
Selection of linear accelerators: depends on the organs to be irradiated, patient's weight, and the number of fractions
Treatment duration can be 10-15-20-30 minutes.

Other tasks, considerations

- Patient notifications - push, email, SMS
- Inpatient bed reservation – with bath, male/female rooms, possibly a floor plan, 10% of beds required
- Patient transport depending on the patient's condition, including stairs, wheelchair, nearby treatment room
- Handling cancellations, filling empty slots
- Machine maintenance - 50% should be managed by patients on other machines Machine breakdowns - repairs typically occur within 4 hours, inpatient and highpriority patient treatments cannot be delayed
- UI UX - User Interface and Experience Design
- Transparent, simple, easy to use
- Where the patient's treatment stands
- Drag and drop functionality
- Machine workload statistics on a daily, weekly, and monthly basis.

5 linear accelerators / irradiation devices

1-2. TrueBeam: capable of all treatments
3-4. VitalBeam: 85% capacity compared to TrueBeams. Not suitable for large-bodied patients and breath-holding.
5. Unique – Clinac 1 energy: Simplest machine, low fractionation and lack of kV imaging

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Who we are

At Varian, a Siemens Healthineers company, we envision a world without fear of cancer. For more than 70 years, we have developed, built and delivered innovative cancer care technologies and solutions for our clinical partners around the globe to help them treat millions of patients each year. With an Intelligent Cancer Care approach, we are harnessing advanced technologies like artificial intelligence, machine learning and data analytics to enhance cancer treatment and expand access to care. Our 10,000 employees across 70 locations keep the patient and our clinical partners at the center of our thinking as we power new victories in cancer care. Because, for cancer patients everywhere, their fight is our fight. For more information, visit http://www.varian.com.

Varian Medical Systems Hungary Kft. successfully applied for the "SUPPORT FOR MARKET-DRIVEN RESEARCH, DEVELOPMENT AND INNOVATION PROJECTS" call for proposals financed by the National Research, Development and Innovation Fund (Grant ID: 2019-1.1.1-PIACI-KFI-2019-00428). Through this application, a total of 247.65 million Hungarian Forints in non-refundable support were utilized for research and development activities, which were completed by December 31, 2021. The primary goal of the project was to support hospitals, universities, and research institutes involved in radiotherapy, enabling them to expedite time- and computation-intensive tasks or modernize the development of radiation treatment plans.

What we will provide

Competitors will be supported by various software developers and product managers from the medical domain, moreover we invite a physicist from the Nation Oncology Institute to answer healthcare related questions.

Implementation and technology

There is no "technical" limitation, you can choose whatever languages/platforms/tooling you want to use.

Judging criteria

For the evaluation process we will use the following matrix:

Steps	Points 0 - 10
Step 0: Presentation – Presenting the killer product idea	
Step 1: Optimization efficiency	
Step 2: Usability and increased Productivity	
Step 3: Extra features	
Step 4: Overall picture	

Prizes

1st place: 1500 EUR