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GNG1103- G03
Deliverable C- Group 15
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1) **Interpreted Needs:**

List Of Need Statements (In Order Of Priority):

The program needs to be configurable (super group)

- User string input: for changing words and names (ig. Input unique names to display someone's birthday)
- Divide display time equally for birthdays.
- User Image input (ig. Input unique team logo)

Prioritized needs:

- The program needs to be quick and efficient to use for the operator.
- The program needs to provide viewers with an aesthetic and visually appealing display.
- The user interface needs to be intuitive and easy to use for the operator (i.e. organized, logical set-up, clearly labelled controls).
- Viewers need to be provided with an engaging display/graphics.
- The program should be designed creatively.

1. **Based on the team's list of interpreted needs, teams will define a list of prioritized design criteria, including functional and non-functional requirements, as well as constraints (and metrics, where appropriate).**

Functional and Non-functional Requirements:

Non-functional requirements are black

Functional requirements are green

Metrics are blue

Constraints are orange

Table 1 Functional and Non-Functional Design Criteria

Number	Need	Design Criteria
1	Need labels to display titles, names, statistics and more.	• Shape of labels boarder (usually rectangle) • Label background color (black) • The color of the String (red) • If the String is Bold, Italic, Underlined Constraint is the label can only have String characters • Geometry/size of label (mm^2 or pixels) • Location (Coordinates (x, y)) (Within display perimeter)
2	The program needs to provide viewers with an aesthetic and visually appealing display	• Background (will be a picture). • Modern style
3	Needs to display team logo	• Size, geometry of label (mm^2 or pixels) • Location (Coordinates (x, y) (Within display perimeter) • Error handling/ error messages
4	The controls need to be intuitive and easy to use for the operator	• Big buttons with bold large writing
5	Needs operator to input sponsor page at any time	• Create an input for the operator to add sponsor pages Constraints on memory size of picture
6	The program needs to divide display time equally for birthdays.	• Create a function to calculate how much time each birthday is displayed. This is done by dividing • the one-minute time by the number of birthdays. • Constraint is one minute for all birthday • Constraint 2 there can only be 0 to infinity birthdays. No negative or decimal birthdays exist.
7	Viewers need to be provided with an engaging display/graphics.	• Customizability

Metrics:

1. Actual cost (to complete the project) in Canadian dollars ($).
2. Display time of graphics in seconds.
3. Programming metrics: int, String, String Arrays and more.
4. Lead time (time to develop ideas and implement in Dashboard) in (days).
5. Active days (time each group member works in Dashboard).
6. Dimensions mm^2 or pixels

2) Technical Benchmarking

Interpreted Needs:

Divide display time equally for Birthdays:

The current process for presenting Birthdays through Ross Video during a hockey game includes a Birthday graphic including an image of the fan, whose Birthday it is. As well, there is a short message included in the graphic. These multiple Birthday graphics will play back to back within a set amount of time. The variables in regards to the amount of birthdays and time given is dependent on each game. Stated before, there may be twelve birthdays in 45 seconds or eight birthdays in 1 minute. With this being said, dividing displaying time equally for Birthdays is essential in the time frame given. The system created is required to efficiently display the Birthdays on an equal time frame.

For the process of fan birthdays at the TD Place, the current process for fan Birthdays is ordering in advance for games held at the TD Place. After research was concluded, the website for TD Place stated that birthday requests must be made two weeks in advance for REDBLACK games while one week for Ottawa 67 birthday requests. This is a positive contribution to the planning of the birthdays and outlining of time per each graphic. With this knowledge and the use of dashboard, the dividing of display time equally for Birthdays can be planned in advance.

In comparison, for the Tampa Bay Lightning hockey team there was research conducted. For this specific team, the NHL website had stated there was more than just birthday messages available. There were personalized messages available including anniversaries, congratulations and more available for preorder. The website had also indicated that the personalized messages request must be made 48 hours in advance to the scheduled hockey game.

Another comparison done through research included the Nationals, a Major League Baseball team located in Washington, DC. Within the website, it was stated that the current process of ordering fan birthday messages in advance to be shown at the games includes 24 hours ordering in advance. It is also indicated that there are limited spots available and is a first-come, first-served basis. There may be a select few spots available and if the game isn't available when selecting, then there aren't any available message requests.

In comparison with some of the competitors, the TD Place, Ottawa 67s game supported by Ross Video has many positives. The deadline for submitting birthday messages is one week ahead of the game. This allows multiple days for the team to accurately and efficiently space out the birthday messages prior to the game. If the time period for submission was shorter such as 24-48 hours like the competitors, problems in regard to time management may arise. In regards to improvement for Ross Video in comparison to competitors, having fewer spots available for birthday messages to the fans may create a more stable birthday schedule. This wouldn't require as much attention and flexibility if there was a set amount of birthdays. As well, another improvement may be including anniversaries or general fan messages may allow for a more creative and diverse graphic.

https://www.tdplace.ca/stadium-guide/
https://www.nhl.com/lightning/fans/in-game-entertainment/fan-shouts
https://www.mlb.com/nationals/fans/scoreboard-messages

Interpreted Needs:

User Image input (ig. Input unique team logo)

The current process for user image input includes setting logos for home and away teams, primary graphic colours for home and away teams, as well as secondary graphic colours for home and away teams. As well the image input can include making noise/crowd prompts using animation graphics to excite the fans attending the events.

3) Target Specifications

Design Specifications	Relation (=, <, or >)	Value	Units	Verification Method
Functional Requirements				
Number of sponsors stored per game	=	6-8	# sponsors	Test
Set primary and secondary colours for home and away teams	=	2	colours/team	Test
Crowd prompt animations	≥	15	# prompts	Test
Constraints				
Sponsor graphics aspect ratio on screen	=	16:9	N/A	Test
Display time for birthdays	≤	1	min	Test
Display size of sponsor bugs in corner of screen	≤	2.0	% of screen	Test
Number of birthdays	>	0	# birthdays	N/A
Size of team logos and goalie names for goalie matchup on bottom of screen	=	19	% of display	Test
Non-Functional Requirements				
Efficient and organized user interface	=	Yes	N/A	Test
Visually appealing	=	Yes	N/A	Test
Ability for operator to trigger names for display immediately when announced (buttons)	=	Yes	N/A	Test

Customizability of graphics (ex. birthday message)	=	Yes	N/A	Test

4) Impact of the Client Meeting on the Content of Deliverable B

The needs listed in Deliverable B are a quick and efficient program that provides viewers with an aesthetically and visually pleasing display while being intuitive and easy to use for the operator. After the client meeting, the general consensus relating to the content of Deliverable B remains generally unchanged. The major differences were relating to details and specifics presented at the client meeting.

Quick, efficient, and easy to operate: Working in this industry can be hard and demanding, not to mention stressful. After all, it takes a lot of confidence in one's self to operate a system in front of thousands of people knowing that anything can happen at any given time. For this reason, our team wants a quick and efficient system that is simple to learn and easy to operate thereafter. We do not want, nor does the client want, a system that is overly complicated riddled in bugs and inconsistencies. Birthday requests are certainly a time crunch between play or during stoppage of play, and therefore, any error will have a significant impact on birthday presentations.

Reliable: The system must be reliable. This one was not explicitly stated in the Deliverable B but it is more implied. The real world example deals with the reliability of a system. The operation of the system leads to a malfunction, something that can be minimized with a more reliable system or with some of the ideas explained in the previous paragraph of quick, efficient, and easy to operate systems. This technical glitch took place at a NHL hockey game between the Nashville Predators and the Toronto Maple Leafs. During the singing of the US national anthem, the audio cut out leading to the fans to finish the Star Spangled Banner. Although this may seem like a fan participation event, it was not part of the plan, and although not problematic during this specific situation, the impact may be more severe if it happened mid-play or during some other presentations. Therefore, it is necessary to produce a reliable system.

Aesthetically/visually pleasing: The client and the user do not simply want something that gets the job done. They want something that does that on top of being creative and nice to look at. Take the example of birthdays. While simply stating 'Happy birthday' and displaying the age gets the message across, it is more aesthetically pleasing (and respectful) to add a photo, the

person's favorite color, possibly a few interests or even a short biography about them. This gives the birthday viewer the impression that they are more than simply a name and a number but that they are so much more and deserve to be proud of themselves. This also makes that person more relatable as a person to the other fans that do not know that person. Maybe a similar background, story, or interests. This can be extended to send a positive message should that person want it. For example, struggles that they want to let others know that they are not alone. Something that can go along with this would be a quick message either a quote or adjectives that can describe the birthday person. This one may also fall into the following one but the user who's info will be displayed may request for their pronouns to be shown to make them feel more comfortable, as well as some other add ons they may choose.

Designed creatively: This is the way competition works in a free-market society: customers want to buy the best product for the lowest price. We as a team have to set ourselves out from our competition to stand out and look different in a creative and positive way. In this case, it is good to be a bit controversial in our design while still maintaining an appropriate product.

Problem Statement: The team's product statement described in Deliverable B is that "Ross Video requires a quick, user-friendly, highly configurable system so that sports fans can be provided with an engaging and appealing display for sporting events at the TD Place." This remains the consensus of the team.

Conclusion: Generally, the content of Deliverable B still remains as is and is still consistent with the the group's collective views.

Toronto Maple Leafs fans finish singing US anthem after technical difficulties - YouTube