CMPT 475 Assignment 2

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Id	User Story
①	As a conference speaker, I want to be able to render the 3D model in all directions, so I can display the model more intuitively and make it easier for other participants to understand. (3 weeks, 15 days)

Id	Tasks	Days
(1)	Write about model transfer system (UI interface design)	2.5 days
(2)	Write about model transfer system that reads the source code and renders it into a viewable view	1 days
(3)	Prepare transmission system drawing base components	2 days
(4)	Write transport system backend logic	3 days
(5)	Design Metaverse Conference Real Time Rendering System	3 days
(6)	Record participants' common control gesture information and store it in the cloud	1.5 days
(7)	Identify and capture key information on participants' hands	2 days
(8)	Can respond accordingly (zoom in, zoom out, move) by recognizing the gesture information of the participants	3 days
(9)	Improve the sensitivity and accuracy of each item to ensure that users can use it more efficiently	1.5 days
Total: 2.5+1+2+3+3+1.5+2+3+1.5 = 19.5 days		19.5 days

Total number of days of each user story: 15 days

Total number of days of summation tasks: 19.5 days

Difference between the number of days: 19.5 – 15 = 4.5 days

Relative error: $\left| \frac{15-19.5}{19.5} \right| = 0.23076 = 23.076\%$

②	As a virtual meeting attendee, I want to customize the appearance and voice of the virtual characters, so I can be more involved in meetings. (1.5 weeks,7.5 days)

Id	Tasks	Days
(1)	Write user-defined interface (UI design)	1.5 days
(2)	Write pre-selection of makeup design composition commonly used by virtual characters	1.5 day
(3)	Create an interface mode for visually impaired people (better showing the details of the display)	1 days
(4)	Write a library of common actions for virtual characters and bind them with specific instructions	2 days
(5)	Write the user language database, and can select the most similar pre-stored audio for the users' voice	2 days
(6)	Render virtual characters according to the user-defined look	2 days
(7)	Adjust virtual characters movement coordination, debug and modify details	1 days
Total: 1.5+1.5+1+2+2+2+1 = 11 days		11 days

Total number of days of each user story: 7.5 days

Total number of days of summation tasks: 11 days

Difference between the number of days: 11 – 7.5 = 3.5 days

Relative error: $\left|\frac{7.5-11}{11}\right| = 0.31818 = 31.818\%$

③ As a virtual meeting attendee, I want to view my writing only through myself biometric authentication, so I can ensure the security and privacy of attending meetings. (2 weeks, 10 days)

Id	Tasks	Days
(1)	Create double encryption process of fingerprint and password	1.5 days
(2)	The user can encrypt any file in the selection bar (the default is encrypted)	1.5 days
(3)	Users can choose to share files with other users, adding their personal information to a whitelist. Users who are not whitelisted will only see a blank space.	3 days
(4)	Every period of time, the system will automatically	3 days

		identify whether the user's basic information is in the whitelist. (Facial Recognition)	
	(5)	Use SSL file encryption to increase security when sharing files with others	1 days
	(6)	When a security breach or malicious damage to files is detected, the files are automatically backed up in the cloud and the user is prompted	3 days
		Total: 1.5+1.5+3+3+1+3 = 13 days	13 days
	Total number of days of each user story: 10 days Total number of days of summation tasks: 13 days Difference between the number of days: 13 − 10 = 3 days Relative error: $\left|\frac{10-13}{13}\right| = 0.23076 = 23.076\%$		
④	As a virtual meeting attendee, I want to record the meeting while I'm in the meeting and play it back from a different perspective, so I can give a more complete experience when reviewing meetings for people who didn't show up. (3 weeks, 15 days)		
	Id	Tasks	Days
	(1)	Writing an interface for viewing conference playback with selectable viewpoints (UI design)	1 days
	(2)	Writing a function to record a conference	1 day
	(3)	Simultaneous recording of a conference using a multi-track view	3 days
	(4)	High-resolution rendering of recorded images and user-adjustable resolution	1 day
	(5)	Save video tracks simultaneously and compress them independently	1 days
	(6)	Some basic viewing playback functions, authoring volume adjustment, progress bar function, pause and multiplier functions	1 day
	(7)	Possibility to merge video and audio tracks from different angles after the session	3 days

(8)	Compression of playback for ready transmission using efficient video compression technology	1 day
(9)	Encryption of recorded sessions to provide a uniform authorization method	1 days
(10)	Provide basic functions (pause, fast forward) when watching playback	1 days
(11)	Interfacing with VR glasses to allow playback of meetings using glasses to be immersive	3 days
(12)	Last modification details and debugging	1 day
Total: 1+1+3+1+1+1+3+1+1+1+3+1 =18 days		18 days

Total number of days of each user story: 15 days

Total number of days of summation tasks: 18 days

Difference between the number of days: 18 – 15 = 3 days

Relative error: $\left|\frac{15-18}{18}\right| = 0.16667 = 16.667\%$

⑤ As a virtual meeting attendee, I want to modify the effect of meeting scene (background), so I can relieve my aesthetic fatigue from a long meeting and bring a different mood to all the participants. (1 weeks, 7 days)

Id	Tasks	Days
(1)	Writing an operator interface where users can make changes to the conference background (UI design)	1 days
(2)	Automatic recognition and matching of user device functions, adjusting screen clarity according to the matching situation	1 day
(3)	Create a data library of preset default background scene materials	1 day
(4)	Rendering background effects with HD particle effects	1 day
(5)	Create a function that allows users to upload their own photos and automatically improve their color and quality based on the images.	1 day
(6)	Users can upload background music, and use the stereo surround sound processing	1 days

	(7)	Adding sound effects and lighting according to different scenes, but making sure it doesn't affect the meeting experience	1.5 days
		Total: 1+1+1+1+1+1+1.5+ = 7.5 days	7.5 days

Total number of days of each user story: 7 days

Total number of days of summation tasks: 7.5 days

Difference between the number of days: 7.5 – 7 = 0.5 days

Relative error: $\left|\frac{7-7.5}{7.5}\right| = 0.06666 = 6.667\%$

⑥	As a virtual meeting attendee, I want to my virtual character could interact with other virtual character (pass file), so I can have a more relaxed and complete meeting experience. (3 weeks, 15 days)

Id	Tasks	Days
(1)	Write user-defined interaction interface (UI design)	1.5 days
(2)	Write user-defined interface logic section	1 day
(3)	Write avatars with the option to print when writing documents	1 day
(4)	Write user basic action module with customizable interactions (gestures, etc.)	3 days
(5)	Option to share directly to the other party's mailbox function when the avatar is delivering a file	1 day
(6)	Option to share private channels when chatting with each other, voice signals are transmitted only between the user and the selected target	2.5 days
(7)	Possibility to send some emoticons, the sent emoticons will have a moving animation	1 day
(8)	You can set to focus mode when giving a speech, all users will receive your voice more loudly	1 day
(9)	You can perform basic actions such as shaking hands, nodding, shaking heads, hugging, cheering, etc. to other virtual users	3 days
(10)	Ability to share linked videos, etc. when interacting	2 days

		with other avatars (only visible to both parties)	
	(11)	Last modification details and debugging	1 day
		Total: 1.5+1+1+3+1+2.5+1+1+3+2+1 = 18 days	18 days
		Total number of days of each user story: 15 days Total number of days of summation tasks: 18 days Difference between the number of days: 18 – 15 = 3 days Relative error: $\left\|\frac{15-18}{18}\right\| = 0.16667 = 16.667\%$	

⑦	As a virtual meeting attendee, I want to be able to perform operations linked to reality in virtual meetings, (such as printing files, Uber, or make video calls by using virtual characters), so I can get more done in virtual meetings without feeling disconnected from reality. (2.5 weeks, 12.5 days)		
	Id	Tasks	Days
	(1)	Writing administrative interfaces linked to reality (UI design and back-end logic)	2 days
	(2)	Write API protocol for Uber that can be used in virtual meetings	1 day
	(3)	Secure access to Uber database and ability to call basic data to be displayed in virtual meetings	2 days
	(4)	Write API protocol for chat program to use some popular chat programs in virtual meetings	1 day
	(5)	Adding a series of protection measures such as anti-eavesdropping to increase the security level during the session	2 days
	(6)	Mapping avatars to the chat screen and reducing latency	2.5 days
	(7)	Add the ability to edit SMS and emails and receive and send emails in real-time	1 day
	(8)	Write a message alert window were all alert messages can be aggregated and centrally managed by the user	1 day
	(9)	Adding more security measures to the existing safety net to ensure the security of the user's data when using	3 days

	each application	
	Total: 2+1+2+1+2+2.5+1+1+3 = 15.5 days	15.5 days

Total number of days of each user story: 12.5 days

Total number of days of summation tasks: 15.5 days

Difference between the number of days: 15.5 – 12.5 = 3 days

Relative error: $\left|\frac{12.5-15.5}{15.5}\right| = 0.19354 = 19.354\%$

⑧ As a virtual meeting attendee, I want to translate other people's language into an understandable language in real time and render them according to their gender's voice, so I can communicate with people all over the world without reading subtitles (2 weeks, 10 days)

Id		Tasks	Days
(1)		Write interface to select translation language (UI design and logic)	1.5 days
(2)		Embedding automatic translation program with neural network machine translation	3 days
(3)		Import speech recognition system, double analysis of user's voice as well as language.	3 days
(4)		Create a voice library and add some default voices.	1 day
(5)		Quickly render the other voice and read the translated content.	3 days
(6)		Reduce user waiting time and minimize delays on both sides	1.5 days
(7)		Intelligently recognize the language spoken by the user, using neutral translation methods for terms and special nouns, and semi-masking for swear words.	1 day
	Total: 1.5+3+3+1+3+1.5+1 = 14 days		14 days

Total number of days of each user story: 10 days

Total number of days of summation tasks: 14 days

Difference between the number of days: 14 – 10 = 4 days

Relative error: $\left|\frac{10-14}{14}\right| = 0.28571 = 28.571\%$

⑨	As a virtual meeting attendee, I want to adding the friends after the office meeting, so I can expand my social hub and chat with each other in a more interesting way. (1.5 weeks, 7.5 days)	

Id	Tasks	Days
(1)	Write friend management interface (UI design)	1 day
(2)	Create a friend system, social circle	2 days
(3)	Writing the ability to add friends by ID number or face-to-face click (button)	2.5 days
(4)	Creation of communication forum and simple functions (chat and conversation, one-click meeting)	3 days
(5)	Add better network security monitoring to ensure the safety of users' personal information	2 days
	Total: 1+2+2.5+3+2 = 10.5 days	10.5 days

Total number of days of each user story: 7.5 days

Total number of days of summation tasks: 10.5 days

Difference between the number of days: 10.5 − 7.5 = 3 days

Relative error: $\left|\frac{7.5-10.5}{10.5}\right| = 0.28571 = 28.571\%$

⑩	As a virtual meeting attendee, I want to have a virtual assistant, so I can quickly learn how to use Metaverse meetings app and can do some simple tasks for me. (3 weeks, 15 days)	

Id	Tasks	Days
(1)	Write admin page for virtual housekeeper (UI design, logic)	1 day
(2)	Create virtual butler's form design and voice (initial settings)	1 day
(3)	Capturing virtual butler's movements, designing basic facial expressions, etc.	1 day
(4)	Create a butler database that can be customized by the user	1 day
(5)	Write newbie orientation process and introduce all basic functions	3 days

(6)	Combine the newbie orientation process with the virtual butler to reduce latency	3 days
(7)	Write virtual housekeeper interface (UI design, logic)	1 day
(8)	Link the virtual butler with some ports of operation. Operations can be done through the virtual butler	1.5 days
(9)	Build voice command recognition for the virtual butler and respond to commands	2 days
(10)	Write and set the timer, teleprompter, stopwatch and other useful functions to the virtual butler library	2 days
Total: 1+1+1+1+3+3+1+1.5+2+2 = 16.5 days		16.5 days
Total number of days of each user story: 15 days Total number of days of summation tasks: 16.5 days Difference between the number of days:16.5 − 15 = 1.5 days Relative error: $\left\|\frac{15-16.5}{16.5}\right\| = 0.090909 = 9.0909\%$		

Total relative error:

0.23076+0.31818+0.23076+0.16667+0.06666+0.16667+0.19354+0.28571+0.28571+ 0.090909 = 2.035569

Average relative error:

$$\frac{2.035569}{10} = 0.2035569 = 20.35569\%$$