Stopwatch Class

This class runs a stopwatch in the background on demand. The stopwatch's time can be retrieved at any time and in any format. The stopwatch runs in a separate thread that stops when the object's destructor is called. Only one stopwatch can ever run at once in a single object.

Public Member Functions and Return Types:

Constructor	Stopwatch(std::string newFormat = "H:M:S.U")
Destructor	~Stopwatch()
std::string	getLap(int lap)
bool	isRunning()
void	reset()
void	saveLap()
bool	setFormat(std::string newFormat)
std::string	showTheTime()
void	start()
void	stop()
bool	timeChanged()

Stopwatch(std::string newFormat = "H:M:S.U")

since 1.0

no exception is thrown

… defines several private variables including the format (see setFormat(std::string newFormat)).

~Stopwatch()

libertastech@proton.me
https://www.libertastech.net/

since 1.0

no exception is thrown

… stops the stopwatch thread if it's running by calling stop().

getLap(int lap)

std::string

since 1.0

no exception is thrown

… returns the lap according to the number stored in the parameter. It is a zero based index, so getLap(0) will return the first lap that was saved by saveLap().

isRunning()

bool

since 1.0

no exception is thrown

… returns true if the stopwatch is running.

reset()

void

since 1.0

no exception is thrown

… deletes all saved laps and returns the stopwatch time to zero. If the stopwatch is running when this function is called, it will continue running after the laps are deleted and the time is changed to zero.

saveLap()

void

since 1.0

libertastech@proton.me
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no exception is thrown

… stores the current time in a vector as a string formatted according to argument last passed to setFormat(std::string newFormat). The limit of laps that can be saved is 100. If more than 100 laps are saved, the first lap is permanently deleted and the latest lap becomes the one hundredth lap.

setFormat(std::string newFormat)

bool

since 1.0

no exception is thrown

… defines the format (passed as the parameter ‘newFormat’). The format is given in up to 4 letters: h (hours), m (minutes), s (seconds), and u (hundredths of a second). If a letter is uppercase and its respective value is a single digit (less than ten) a zero will be inserted before the digit. In other words, if the stopwatch is displaying 3 hours, 58 minutes, 7 seconds, and 91 hundredths of a second and is left at the default format, the string the stopwatch will generate will be “03:58:07.91”. However, if the format’s value is “h:m:s.U”, the time will be “3:58:7.91”. U is the only letter that must always be 0. S is the only letter that is mandatory in the format. However, h cannot be used in the format if there is no m.

showTheTime()

std::string

since 1.0

no exception is thrown

… returns a string containing the current time of the stopwatch. It is formatted according to the argument most recently passed to setFormat(std::string newFormat).

start()

void

libertastech@proton.me
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since 1.0

no exception is thrown

… starts the stopwatch in a new thread. If the stopwatch is already running, this function does nothing.

stop()

void

since 1.0

no exception is thrown

… stops the stopwatch thread if it is running. If the stopwatch is not running, this function does nothing.

timeChanged()

bool

since 1.0

no exception is thrown

… returns true if the time has changed since the showTheTime() was last called.

All questions and feedback, either positive or negative, are welcome and encouraged. Contact us by emailing us or visiting our website via the links in the footers of this document.

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