1

00:00:00,030 --> 00:00:04,110

what's the best screen mode for your

2

00:00:02,250 --> 00:00:06,810

program what's a screen mode to begin

3

00:00:04,110 --> 00:00:09,330

with in today's episode of QB 64 rewards

4

00:00:06,810 --> 00:00:11,250

will detect screen mode and break legacy

5

00:00:09,330 --> 00:00:14,160

barriers in order to create modern

6

00:00:11,250 --> 00:00:16,710

applications with QB 64 or maybe just

7

00:00:14,160 --> 00:00:20,100

relieve the glory of old screen 13 days

8

00:00:16,710 --> 00:00:22,320

welcome to episode 2 of QB 64 report I'm

9

00:00:20,100 --> 00:00:24,869

Philippa toe part of the team developing

10

00:00:22,320 --> 00:00:27,449

QB 64 and this is bill also known as

11

00:00:24,869 --> 00:00:29,550

static this is David known as cobble

12

00:00:27,449 --> 00:00:34,680

today's episode was recorded on June

13

00:00:29,550 --> 00:00:37,050

14th 2020 so here we are and we had a

14

00:00:34,680 --> 00:00:39,149

very warm response to our first episode

15

00:00:37,050 --> 00:00:41,670

thank you guys who listened yeah I was

16

00:00:39,149 --> 00:00:43,200

very pleased with the not only positive

17

00:00:41,670 --> 00:00:45,390

response but even sheer number of

18

00:00:43,200 --> 00:00:48,020

downloads the fact that you have to take

19

00:00:45,390 --> 00:00:50,340

your shoes off to count the number is

20

00:00:48,020 --> 00:00:52,680

really flattering the fact that we got

21

00:00:50,340 --> 00:00:54,510

even dozens is even more flattering I've

22

00:00:52,680 --> 00:00:58,469

got plenty of good feedback about this

23

00:00:54,510 --> 00:00:59,910

on the QB 64 forums as well and we have

24

00:00:58,469 --> 00:01:02,219

to shout out to a few members who

25

00:00:59,910 --> 00:01:05,820

pointed out some pretty cool things you

26

00:01:02,219 --> 00:01:07,200

know it was pretty surprised but kind of

27

00:01:05,820 --> 00:01:10,280

nice thinking that that many people

28

00:01:07,200 --> 00:01:12,299

would actually listen to it and find it

29

00:01:10,280 --> 00:01:15,030

interesting enough to actually listen to

30

00:01:12,299 --> 00:01:17,250

the entire thing I mean in the 80s we

31

00:01:15,030 --> 00:01:18,960

would be the Nerds at the a/v Club and

32

00:01:17,250 --> 00:01:20,970

nobody would pay attention to us and

33

00:01:18,960 --> 00:01:23,100

this is really something I love 2020

34

00:01:20,970 --> 00:01:24,479

after that yeah definitely true it's

35

00:01:23,100 --> 00:01:26,580

great that we get to record this and

36

00:01:24,479 --> 00:01:29,220

people can play it at their own leisure

37

00:01:26,580 --> 00:01:30,990

rather than say go go get married to

38

00:01:29,220 --> 00:01:32,759

your radio at a specific time and if you

39

00:01:30,990 --> 00:01:34,530

miss it that's it yeah most it was

40

00:01:32,759 --> 00:01:36,509

brutal time in this back then podcasting

41

00:01:34,530 --> 00:01:39,360

is totally great

42

00:01:36,509 --> 00:01:42,090

so I guess to wrap up episode one and

43

00:01:39,360 --> 00:01:43,710

put formally behind us so we talked

44

00:01:42,090 --> 00:01:46,140

about option explicit we talked about

45

00:01:43,710 --> 00:01:48,570

different styles for using it when you

46

00:01:46,140 --> 00:01:51,090

turn it on when you might care to turn

47

00:01:48,570 --> 00:01:52,710

it off for the sake of speed and one of

48

00:01:51,090 --> 00:01:54,390

our members Vince I don't know if it's a

49

00:01:52,710 --> 00:01:57,240

silent underscore or if I should call

50

00:01:54,390 --> 00:01:59,610

him underscore Vince but he's awesome

51

00:01:57,240 --> 00:02:01,649

very smart guy he pointed out that if

52

00:01:59,610 --> 00:02:03,930

you have option explicit turned on and

53

00:02:01,649 --> 00:02:05,939

you do need to create what we'll call

54

00:02:03,930 --> 00:02:09,450

just dummy variables or temp variables

55

00:02:05,939 --> 00:02:11,160

on the fly you don't need to go to some

56

00:02:09,450 --> 00:02:13,319

other section of your code to do your

57

00:02:11,160 --> 00:02:13,770

dim statement you can actually do a dim

58

00:02:13,319 --> 00:02:16,380

statement

59

00:02:13,770 --> 00:02:20,430

nested right inside an if and he posted

60

00:02:16,380 --> 00:02:21,900

some replied to show us that that's a

61

00:02:20,430 --> 00:02:23,580

pretty cool feature that we've got not

62

00:02:21,900 --> 00:02:25,740

every language and ever let you do that

63

00:02:23,580 --> 00:02:27,690

a lot of compilers would throw a fit

64

00:02:25,740 --> 00:02:28,770

but yeah the fact that you can dim right

65

00:02:27,690 --> 00:02:30,510

inside yeah go ahead

66

00:02:28,770 --> 00:02:33,540

yeah it was interesting to know I didn't

67

00:02:30,510 --> 00:02:35,070

know about the C++ thing that a variable

68

00:02:33,540 --> 00:02:36,210

used in a loop is not gonna be able

69

00:02:35,070 --> 00:02:39,540

failable out of it

70

00:02:36,210 --> 00:02:41,610

so in cuba 64 in QBasic in general you

71

00:02:39,540 --> 00:02:43,320

can do that and of course the variable

72

00:02:41,610 --> 00:02:45,360

is going to be available outside of it

73

00:02:43,320 --> 00:02:47,460

but it's useful that you can do it

74

00:02:45,360 --> 00:02:49,110

I remember Ashish once looking at one of

75

00:02:47,460 --> 00:02:50,670

my codes or maybe it was not Ashish I

76

00:02:49,110 --> 00:02:53,250

just have him in my met the back of my

77

00:02:50,670 --> 00:02:55,260

mind and asking me why did you dam this

78

00:02:53,250 --> 00:02:56,370

variable inside the loop you don't need

79

00:02:55,260 --> 00:02:58,320

to dream it inside the loop and I was

80

00:02:56,370 --> 00:03:00,270

like but it doesn't matter because it's

81

00:02:58,320 --> 00:03:03,030

just there close to where I first used

82

00:03:00,270 --> 00:03:04,890

it and you can totally do it right yeah

83

00:03:03,030 --> 00:03:06,960

I think people who come from other

84

00:03:04,890 --> 00:03:09,090

languages might carry notions of block

85

00:03:06,960 --> 00:03:11,220

scope as opposed to function scope or

86

00:03:09,090 --> 00:03:14,520

what we might call it here is I guess

87

00:03:11,220 --> 00:03:17,010

sub scope or something but um yeah after

88

00:03:14,520 --> 00:03:19,800

all in QB 64 dimming is rather intuitive

89

00:03:17,010 --> 00:03:23,550

if you if it seems like you're allowed

90

00:03:19,800 --> 00:03:26,280

to do it turns out you can yeah so I

91

00:03:23,550 --> 00:03:28,380

found that I guess we may be implied

92

00:03:26,280 --> 00:03:29,820

that last week but yeah Vince was kind

93

00:03:28,380 --> 00:03:33,390

enough to point it out explicitly it's a

94

00:03:29,820 --> 00:03:36,330

pretty cool use of dimming okay so this

95

00:03:33,390 --> 00:03:38,430

is something that we hope to cover with

96

00:03:36,330 --> 00:03:40,380

every podcast at least cover the last

97

00:03:38,430 --> 00:03:43,050

week's worth or since the last episodes

98

00:03:40,380 --> 00:03:45,209

worth of just a small cherry-picking of

99

00:03:43,050 --> 00:03:47,459

developments or interesting discussions

100

00:03:45,209 --> 00:03:50,130

or posts that took place this is by no

101

00:03:47,459 --> 00:03:53,370

means a comprehensive review of the news

102

00:03:50,130 --> 00:03:54,990

and I am by no means going to be the

103

00:03:53,370 --> 00:03:56,700

sole one to do this every single week

104

00:03:54,990 --> 00:03:58,650

but I'm just going to sort of pioneer

105

00:03:56,700 --> 00:04:02,459

flowering through a few of these posts

106

00:03:58,650 --> 00:04:03,810

and giving shoutouts in just

107

00:04:02,459 --> 00:04:06,060

highlighting things that we all ought to

108

00:04:03,810 --> 00:04:08,250

be looking at and in no particular order

109

00:04:06,060 --> 00:04:11,520

either in fact going in kind of Reverse

110

00:04:08,250 --> 00:04:13,700

so we've got a really cool function on

111

00:04:11,520 --> 00:04:17,100

hand we've had this tool for a few years

112

00:04:13,700 --> 00:04:18,989

provided to us by Steve McNeil and this

113

00:04:17,100 --> 00:04:21,330

is the save image routine or library

114

00:04:18,989 --> 00:04:22,800

this has been floating around in a few

115

00:04:21,330 --> 00:04:23,690

of our projects for a while

116

00:04:22,800 --> 00:04:27,230

Wow

117

00:04:23,690 --> 00:04:28,990

on the toolbox I believe as something to

118

00:04:27,230 --> 00:04:31,730

plug-and-play into each of our programs

119

00:04:28,990 --> 00:04:34,250

and only recently I guess a very minor

120

00:04:31,730 --> 00:04:36,260

bug based on trivial typos was

121

00:04:34,250 --> 00:04:38,540

discovered in it where it had trouble

122

00:04:36,260 --> 00:04:41,420

saving ping images in the proper format

123

00:04:38,540 --> 00:04:43,940

and that is I think even as of this

124

00:04:41,420 --> 00:04:46,520

morning still being hammered out but

125

00:04:43,940 --> 00:04:48,290

it's coming to a nice new polished

126

00:04:46,520 --> 00:04:50,180

version it's already a nice tool and

127

00:04:48,290 --> 00:04:53,080

what does it save image so what is this

128

00:04:50,180 --> 00:04:55,190

all about this is a way to capture the

129

00:04:53,080 --> 00:04:58,430

picture of the screen that you're using

130

00:04:55,190 --> 00:05:00,590

and save it to an external file and and

131

00:04:58,430 --> 00:05:02,450

quickly so you can wire this into a

132

00:05:00,590 --> 00:05:06,260

button into a key word or even into a

133

00:05:02,450 --> 00:05:09,650

loop even at appreciable you know

134

00:05:06,260 --> 00:05:12,200

iterations per second it'll refresh a

135

00:05:09,650 --> 00:05:15,200

ping or a jpg or whatever you'd like to

136

00:05:12,200 --> 00:05:18,230

a folder and I've tested this with a

137

00:05:15,200 --> 00:05:20,240

browser a little code snippet I have

138

00:05:18,230 --> 00:05:22,940

JavaScript that just pulls up the image

139

00:05:20,240 --> 00:05:25,190

as fast as it can every you know a

140

00:05:22,940 --> 00:05:29,540

couple of milliseconds and you can watch

141

00:05:25,190 --> 00:05:32,390

a QB 64 program pretty much evolve live

142

00:05:29,540 --> 00:05:34,550

in your browser an appreciable refresh

143

00:05:32,390 --> 00:05:35,930

rate so in other words you can any

144

00:05:34,550 --> 00:05:36,710

program that's running just capture a

145

00:05:35,930 --> 00:05:38,419

picture of it

146

00:05:36,710 --> 00:05:39,919

beam it out and just do anything with

147

00:05:38,419 --> 00:05:42,050

that image it's pretty cool and it works

148

00:05:39,919 --> 00:05:44,300

pretty fast it's kind of a way of

149

00:05:42,050 --> 00:05:47,870

relieving the old queue loud that

150

00:05:44,300 --> 00:05:49,430

Galleon had on the old website that's

151

00:05:47,870 --> 00:05:52,130

correct yeah that's a shout-out to way

152

00:05:49,430 --> 00:05:55,240

back pre twenty eleven or twelve or so

153

00:05:52,130 --> 00:05:57,950

right uh yeah so there was a browser

154

00:05:55,240 --> 00:06:00,380

implementation of some kind of QB 64 I

155

00:05:57,950 --> 00:06:02,540

think it was a version of the compiler

156

00:06:00,380 --> 00:06:05,270

just ready and running on a server in

157

00:06:02,540 --> 00:06:07,310

galleons house somewhere yeah and it had

158

00:06:05,270 --> 00:06:08,780

a way yeah it had a way of beaming its

159

00:06:07,310 --> 00:06:11,120

output to the screen but it also had a

160

00:06:08,780 --> 00:06:13,190

way of handling inputs save image

161

00:06:11,120 --> 00:06:15,890

obviously concerns only outputs you'd

162

00:06:13,190 --> 00:06:17,900

have to do a new trick to put input

163

00:06:15,890 --> 00:06:20,570

through the browser say into the program

164

00:06:17,900 --> 00:06:23,960

but nonetheless keep on the lookout for

165

00:06:20,570 --> 00:06:26,690

the final stamp on that and one of our

166

00:06:23,960 --> 00:06:27,980

large librarians will pick up the update

167

00:06:26,690 --> 00:06:29,060

and put it in the tool box and you can

168

00:06:27,980 --> 00:06:30,800

play around with this too

169

00:06:29,060 --> 00:06:33,169

yeah and the good thing about safe image

170

00:06:30,800 --> 00:06:36,050

right now is that Steve just updated it

171

00:06:33,169 --> 00:06:37,310

to use deflate and inflate functions

172

00:06:36,050 --> 00:06:40,610

that we've added to

173

00:06:37,310 --> 00:06:42,560

QB 64 version 1.4 so in previous

174

00:06:40,610 --> 00:06:44,660

versions of save image you would have to

175

00:06:42,560 --> 00:06:47,300

jump several hoops to get working on mac

176

00:06:44,660 --> 00:06:48,530

OS and linux but right now because the

177

00:06:47,300 --> 00:06:51,530

compression and the compression

178

00:06:48,530 --> 00:06:54,590

functions are native you can use new

179

00:06:51,530 --> 00:06:56,840

save image across all platforms that's a

180

00:06:54,590 --> 00:07:00,139

very good addition yeah that is a nice

181

00:06:56,840 --> 00:07:02,330

tweak it's that alludes to a cooler I

182

00:07:00,139 --> 00:07:04,870

guess equally cool topic of what is

183

00:07:02,330 --> 00:07:07,250

inflate and deflate so QB 64 has native

184

00:07:04,870 --> 00:07:09,770

compression for I guess arbitrary data

185

00:07:07,250 --> 00:07:11,630

at this point pretty pretty nifty tool I

186

00:07:09,770 --> 00:07:14,120

guess we'll cover that more or less soon

187

00:07:11,630 --> 00:07:15,620

but clicking further through the news as

188

00:07:14,120 --> 00:07:17,630

we'll call it so I click over to games

189

00:07:15,620 --> 00:07:19,610

and recently what do we see a few

190

00:07:17,630 --> 00:07:21,290

updates thanks again to the librarians I

191

00:07:19,610 --> 00:07:24,860

think this is Courtney's handiwork

192

00:07:21,290 --> 00:07:27,140

so Dragon Warrior is finally in games so

193

00:07:24,860 --> 00:07:29,979

COBOL so we've got a final polished

194

00:07:27,140 --> 00:07:32,450

version that is I guess gonna be free of

195

00:07:29,979 --> 00:07:35,240

hopefully free of updates and free of

196

00:07:32,450 --> 00:07:37,880

all bugs fingers crossed well it should

197

00:07:35,240 --> 00:07:40,400

be free of any detrimental bugs there's

198

00:07:37,880 --> 00:07:42,700

a few quirks in it that I'll probably

199

00:07:40,400 --> 00:07:45,140

leave in and less somebody really really

200

00:07:42,700 --> 00:07:46,880

gets on me about fixing it do what

201

00:07:45,140 --> 00:07:50,320

everybody does wait for someone to come

202

00:07:46,880 --> 00:07:53,500

play and say oh gosh what's that there

203

00:07:50,320 --> 00:07:55,789

yeah there's it there's nothing

204

00:07:53,500 --> 00:07:57,080

functional there's just some cosmetic

205

00:07:55,789 --> 00:07:58,940

things right now the least I know

206

00:07:57,080 --> 00:08:00,770

because I've played it from start to

207

00:07:58,940 --> 00:08:02,740

finish but you know new people can find

208

00:08:00,770 --> 00:08:05,150

new ways to break things

209

00:08:02,740 --> 00:08:07,490

let's awesome congrats again and I'm

210

00:08:05,150 --> 00:08:10,250

glad that game is it's broken free of

211

00:08:07,490 --> 00:08:13,010

the programs prototype you know wild

212

00:08:10,250 --> 00:08:14,900

wild west arena that we have and it's

213

00:08:13,010 --> 00:08:17,979

now becoming immortalized as the

214

00:08:14,900 --> 00:08:20,680

uneditable forum post so it'll

215

00:08:17,979 --> 00:08:23,539

god-willing outlive all of us now

216

00:08:20,680 --> 00:08:26,720

similar can be said for a new chess game

217

00:08:23,539 --> 00:08:28,760

that's popped up in games so chess is an

218

00:08:26,720 --> 00:08:31,850

ongoing problem in all of computer

219

00:08:28,760 --> 00:08:34,520

science is it not QB 64 is no exception

220

00:08:31,850 --> 00:08:36,710

so plenty of us have messed around with

221

00:08:34,520 --> 00:08:39,440

the chess engine one guy in particular

222

00:08:36,710 --> 00:08:43,039

this is Richard frost if I'm getting my

223

00:08:39,440 --> 00:08:46,640

Richards right has a chess engine with a

224

00:08:43,039 --> 00:08:48,530

full-blown GUI going on and it's now

225

00:08:46,640 --> 00:08:50,300

freshly posted I guess most of the bugs

226

00:08:48,530 --> 00:08:52,490

are worked out

227

00:08:50,300 --> 00:08:55,070

and by the author's own comments it's

228

00:08:52,490 --> 00:08:56,660

got a pretty good middle game and I

229

00:08:55,070 --> 00:08:58,670

guess if you can get past the middle

230

00:08:56,660 --> 00:09:01,220

game you might Trump it in the end game

231

00:08:58,670 --> 00:09:03,620

I haven't played it completely through

232

00:09:01,220 --> 00:09:05,870

yet but it does seem to make legal moves

233

00:09:03,620 --> 00:09:07,310

and certainly look sharp has anybody

234

00:09:05,870 --> 00:09:08,690

else tried that or any other chess

235

00:09:07,310 --> 00:09:11,209

enthusiasts if you guys tried to make

236

00:09:08,690 --> 00:09:13,670

the chess engine before I haven't I can

237

00:09:11,209 --> 00:09:15,980

barely play it yeah I'm not that big in

238

00:09:13,670 --> 00:09:17,810

it I mean I may play it from time to

239

00:09:15,980 --> 00:09:20,240

time but I don't play against anything

240

00:09:17,810 --> 00:09:22,100

better than the novice setting and let

241

00:09:20,240 --> 00:09:24,890

me just point out that if you chat with

242

00:09:22,100 --> 00:09:27,050

Richard for us on this corn you know how

243

00:09:24,890 --> 00:09:29,690

much of a crazy person that guy is and

244

00:09:27,050 --> 00:09:31,579

it's a very respectable thing that your

245

00:09:29,690 --> 00:09:34,190

guy can focus and sit down to write a

246

00:09:31,579 --> 00:09:36,380

chess engine crazy respect for your

247

00:09:34,190 --> 00:09:38,060

Richard you know let me resonate with

248

00:09:36,380 --> 00:09:40,550

that so this is the same Richard that

249

00:09:38,060 --> 00:09:42,620

wrote the lunar lander program am I

250

00:09:40,550 --> 00:09:44,890

getting my Ricker's right again I don't

251

00:09:42,620 --> 00:09:47,480

resolve if it's the same game but

252

00:09:44,890 --> 00:09:51,200

Richard is the guy who's always selling

253

00:09:47,480 --> 00:09:53,269

fried squirrel zones on a stick over at

254

00:09:51,200 --> 00:09:57,829

this course so that's the guy we're

255

00:09:53,269 --> 00:09:59,720

talking about exactly so alright so

256

00:09:57,829 --> 00:10:01,370

there's another there's another game

257

00:09:59,720 --> 00:10:03,050

that's up there it's been there for a

258

00:10:01,370 --> 00:10:05,140

little while so this may or may not be

259

00:10:03,050 --> 00:10:07,579

the freshest news but in case nobody's

260

00:10:05,140 --> 00:10:09,290

tried this or if you think moon Landers

261

00:10:07,579 --> 00:10:12,290

are one and all the same once you've

262

00:10:09,290 --> 00:10:13,940

tried one you are mistaken you must try

263

00:10:12,290 --> 00:10:16,610

this game it is the quirkiest most

264

00:10:13,940 --> 00:10:19,399

hilarious thing even reading the code is

265

00:10:16,610 --> 00:10:21,350

funny you play this game it's playable

266

00:10:19,399 --> 00:10:24,649

you live a while you can crash there's

267

00:10:21,350 --> 00:10:27,230

risks you run by black holes aliens

268

00:10:24,649 --> 00:10:29,270

JFK's grave just whatever it's the

269

00:10:27,230 --> 00:10:31,130

quirkiest bit of uh I guess American

270

00:10:29,270 --> 00:10:34,040

subculture mixed with code that I've

271

00:10:31,130 --> 00:10:36,110

ever seen in QB 64 it's a hilarious game

272

00:10:34,040 --> 00:10:40,670

this guy's an artist so people should

273

00:10:36,110 --> 00:10:43,100

try that moving on I swear we're not

274

00:10:40,670 --> 00:10:45,079

doing all games today but we've got just

275

00:10:43,100 --> 00:10:47,510

another star member of the forums who we

276

00:10:45,079 --> 00:10:49,360

don't mention often enough I guess it's

277

00:10:47,510 --> 00:10:52,730

only episode two so nobody can complain

278

00:10:49,360 --> 00:10:55,070

but we've got a guy b-plus right so

279

00:10:52,730 --> 00:10:57,320

b-plus helps everybody with everything

280

00:10:55,070 --> 00:10:59,630

if any interesting question comes up and

281

00:10:57,320 --> 00:11:01,670

it doesn't even matter what area it's in

282

00:10:59,630 --> 00:11:04,100

b-plus will have something for you and

283

00:11:01,670 --> 00:11:07,220

it'll be it'll be right to

284

00:11:04,100 --> 00:11:09,770

just a clever guy so he's recently

285

00:11:07,220 --> 00:11:11,960

changed his avatar to a couple of cards

286

00:11:09,770 --> 00:11:13,370

so I've I had to check what this is all

287

00:11:11,960 --> 00:11:16,460

about and of course he's been developing

288

00:11:13,370 --> 00:11:18,320

blackjack and with the help of some

289

00:11:16,460 --> 00:11:20,030

other folks we've got has even got a

290

00:11:18,320 --> 00:11:22,670

graphical version going on now

291

00:11:20,030 --> 00:11:25,100

so I guess there's a full-blown yeah

292

00:11:22,670 --> 00:11:26,930

there's there's user Jono helping him

293

00:11:25,100 --> 00:11:28,760

with the artwork and pretty good will

294

00:11:26,930 --> 00:11:30,050

aren't were - yeah it's it's an it's

295

00:11:28,760 --> 00:11:31,880

been an amazing project to kind of

296

00:11:30,050 --> 00:11:34,520

scroll through and catch up with so

297

00:11:31,880 --> 00:11:37,670

pretty soon I bet that will have reached

298

00:11:34,520 --> 00:11:40,520

its end game no pun and that'll wind up

299

00:11:37,670 --> 00:11:42,880

in the forums - it's uh it's pretty

300

00:11:40,520 --> 00:11:45,380

exciting and it's it makes me want to

301

00:11:42,880 --> 00:11:47,750

question whether I spend all my gaming

302

00:11:45,380 --> 00:11:49,550

time on the right applications you know

303

00:11:47,750 --> 00:11:51,470

his Borderlands - really that important

304

00:11:49,550 --> 00:11:54,700

I could be playing Dragon Warrior and

305

00:11:51,470 --> 00:11:57,110

all this stuff really food for thought

306

00:11:54,700 --> 00:12:00,170

so what else happened this week another

307

00:11:57,110 --> 00:12:01,790

discussion that was interesting

308

00:12:00,170 --> 00:12:03,860

flourishing and it just it just kept

309

00:12:01,790 --> 00:12:07,150

going and going was this horoscope

310

00:12:03,860 --> 00:12:09,470

calculation so we've got somebody who is

311

00:12:07,150 --> 00:12:11,990

working on something kind of esoteric

312

00:12:09,470 --> 00:12:15,050

this is one of the great things about QB

313

00:12:11,990 --> 00:12:17,060

64 it not only is a way to work on

314

00:12:15,050 --> 00:12:18,980

strange things that you don't always

315

00:12:17,060 --> 00:12:20,240

have a ready-made calculator for a lot

316

00:12:18,980 --> 00:12:22,640

of times you have to hand roll your own

317

00:12:20,240 --> 00:12:24,260

but you're also gonna find people with a

318

00:12:22,640 --> 00:12:26,810

similar interest I can't believe that

319

00:12:24,260 --> 00:12:29,120

this guy and just a whole string of

320

00:12:26,810 --> 00:12:30,920

people and especially our Italian

321

00:12:29,120 --> 00:12:32,960

prodigy Tim potty basic is that how you

322

00:12:30,920 --> 00:12:35,960

guys say it been put your babies and I

323

00:12:32,960 --> 00:12:37,820

saying got together and got get got

324

00:12:35,960 --> 00:12:39,080

together and finish the calculations for

325

00:12:37,820 --> 00:12:42,560

this thing so it doesn't even matter if

326

00:12:39,080 --> 00:12:45,380

you're doing you know trajectories in a

327

00:12:42,560 --> 00:12:46,730

video game or horoscope calculations

328

00:12:45,380 --> 00:12:48,320

there's somebody here is going to be

329

00:12:46,730 --> 00:12:52,160

interested in you're in the right place

330

00:12:48,320 --> 00:12:53,660

you've got the language for it and

331

00:12:52,160 --> 00:12:56,300

there's countless other things that

332

00:12:53,660 --> 00:12:57,770

happen in the forum's all kinds of cool

333

00:12:56,300 --> 00:13:00,290

moments of people showing each other

334

00:12:57,770 --> 00:13:01,850

things and debugging and so forth but

335

00:13:00,290 --> 00:13:05,120

there's one final thing this is about a

336

00:13:01,850 --> 00:13:07,430

week old and this is once again a

337

00:13:05,120 --> 00:13:09,260

question raised by one of our just star

338

00:13:07,430 --> 00:13:11,230

members it's going back for years so

339

00:13:09,260 --> 00:13:14,330

everybody knows the work of Terry Richey

340

00:13:11,230 --> 00:13:16,310

his code is as robust as his commenting

341

00:13:14,330 --> 00:13:17,180

style right it's just rigid nice

342

00:13:16,310 --> 00:13:19,640

statements like

343

00:13:17,180 --> 00:13:21,980

the job done and you know indented over

344

00:13:19,640 --> 00:13:23,810

in a perfect column on the right is one

345

00:13:21,980 --> 00:13:25,220

comment per statement you just know

346

00:13:23,810 --> 00:13:28,220

exactly what's going on with this guy's

347

00:13:25,220 --> 00:13:29,630

code and those ingredients work because

348

00:13:28,220 --> 00:13:32,120

he writes good stuff it has a good

349

00:13:29,630 --> 00:13:35,210

reputation for counting and all this and

350

00:13:32,120 --> 00:13:37,400

we cannot forget to point out QB

351

00:13:35,210 --> 00:13:39,440

sixty-four source code comm which is the

352

00:13:37,400 --> 00:13:41,570

website he's putting up with a vast and

353

00:13:39,440 --> 00:13:43,310

very comprehensive tutorial on all

354

00:13:41,570 --> 00:13:45,530

things give me sixty-four definitely

355

00:13:43,310 --> 00:13:47,900

worth checking out it's still a work in

356

00:13:45,530 --> 00:13:50,090

progress but it's based on a previous

357

00:13:47,900 --> 00:13:51,830

work that was already finished so you

358

00:13:50,090 --> 00:13:54,440

guys should definitely check it out

359

00:13:51,830 --> 00:13:56,540

QB sixty-four source code comm that's a

360

00:13:54,440 --> 00:13:59,120

great that's a great time to plug that

361

00:13:56,540 --> 00:14:01,130

and it's there's a cool pedagogical

362

00:13:59,120 --> 00:14:03,470

advantage to that so it's QB sixty-four

363

00:14:01,130 --> 00:14:05,960

source code calm and the slant is for

364

00:14:03,470 --> 00:14:07,610

game programming and people might say oh

365

00:14:05,960 --> 00:14:09,770

I don't want to make games but I point

366

00:14:07,610 --> 00:14:12,410

this out anything you do that is

367

00:14:09,770 --> 00:14:14,570

demanding of a computer has probably

368

00:14:12,410 --> 00:14:16,760

done somewhere in a game that technique

369

00:14:14,570 --> 00:14:17,990

is probably fleshed out somewhere in a

370

00:14:16,760 --> 00:14:20,570

game I don't care if it's vector

371

00:14:17,990 --> 00:14:22,460

projections are sorting or shading

372

00:14:20,570 --> 00:14:25,040

whatever it might be even non graphics a

373

00:14:22,460 --> 00:14:26,900

lot of the nuts and bolts of computer

374

00:14:25,040 --> 00:14:29,330

science does occur right in games so if

375

00:14:26,900 --> 00:14:31,730

you learn this language or decide to

376

00:14:29,330 --> 00:14:33,710

relearn the language using his tutorials

377

00:14:31,730 --> 00:14:36,020

with the slant of doing games you'll

378

00:14:33,710 --> 00:14:37,580

you'll suddenly feel empowered to do all

379

00:14:36,020 --> 00:14:39,890

kinds of things that were not games

380

00:14:37,580 --> 00:14:42,140

right this is analogous to if you want

381

00:14:39,890 --> 00:14:43,760

to buy a new system even if you don't

382

00:14:42,140 --> 00:14:45,290

gain much you might as well buy a gaming

383

00:14:43,760 --> 00:14:47,450

computer because you know it's more

384

00:14:45,290 --> 00:14:49,100

powerful than just your normal stuff

385

00:14:47,450 --> 00:14:51,050

there's a perfect analogy here if you

386

00:14:49,100 --> 00:14:53,300

can code to do games and do it well you

387

00:14:51,050 --> 00:14:56,780

can probably code anything so it's

388

00:14:53,300 --> 00:15:00,650

that's a great site this guy's got an

389

00:14:56,780 --> 00:15:03,140

incredible motor inside him that keeps

390

00:15:00,650 --> 00:15:05,810

keeps focus and just types out these

391

00:15:03,140 --> 00:15:08,360

endless pages and extremely informative

392

00:15:05,810 --> 00:15:10,340

informative examples that self reference

393

00:15:08,360 --> 00:15:14,840

and it's just a great work altogether

394

00:15:10,340 --> 00:15:17,210

it's a nice standalone volume so what

395

00:15:14,840 --> 00:15:19,730

was so why is why is this in the news so

396

00:15:17,210 --> 00:15:21,650

as one of its examples terry is working

397

00:15:19,730 --> 00:15:23,540

on a pong game and there was a very

398

00:15:21,650 --> 00:15:25,820

interesting question came up that came

399

00:15:23,540 --> 00:15:27,680

up so when you look at pong you see a

400

00:15:25,820 --> 00:15:29,300

ball just going back and forth or a puck

401

00:15:27,680 --> 00:15:31,070

it's usually a square not even a ball

402

00:15:29,300 --> 00:15:33,350

and everything in the

403

00:15:31,070 --> 00:15:34,700

the pong world is rigid especially in

404

00:15:33,350 --> 00:15:37,010

the origins of that game we have to

405

00:15:34,700 --> 00:15:39,080

imagine it tari speaking of spree modes

406

00:15:37,010 --> 00:15:41,660

that we'll get to when pixels are the

407

00:15:39,080 --> 00:15:43,940

size of you know you know your your

408

00:15:41,660 --> 00:15:46,880

whole entire thumb you don't really get

409

00:15:43,940 --> 00:15:50,060

balls you had to deal in squares so how

410

00:15:46,880 --> 00:15:51,500

could pong possibly be interesting in a

411

00:15:50,060 --> 00:15:53,660

world where everything's flat and

412

00:15:51,500 --> 00:15:55,760

everything is diagonally reflected so

413

00:15:53,660 --> 00:15:57,590

Terry came up with a good question and

414

00:15:55,760 --> 00:15:59,750

I'm not sure if this is how pong used to

415

00:15:57,590 --> 00:16:02,620

work in the past but he came up with the

416

00:15:59,750 --> 00:16:05,420

following issue of suppose the pong

417

00:16:02,620 --> 00:16:06,740

paddle still looks like a dash because

418

00:16:05,420 --> 00:16:10,100

that's all we can draw let's pretend

419

00:16:06,740 --> 00:16:11,870

that even now but behind the scenes what

420

00:16:10,100 --> 00:16:14,750

if the reflection off of the paddle is

421

00:16:11,870 --> 00:16:16,430

as if it was curved and that's an

422

00:16:14,750 --> 00:16:19,370

interesting question so you have to

423

00:16:16,430 --> 00:16:20,960

imagine if the pong paddle is really

424

00:16:19,370 --> 00:16:25,400

like an air hockey puck this is quite

425

00:16:20,960 --> 00:16:27,380

much like B pluses other game so you get

426

00:16:25,400 --> 00:16:29,060

all kinds of exotic reflections if it

427

00:16:27,380 --> 00:16:30,980

was only a straight-on shot in the

428

00:16:29,060 --> 00:16:34,040

middle of the paddle would give you a

429

00:16:30,980 --> 00:16:35,330

perfect reflection anything off of the

430

00:16:34,040 --> 00:16:37,010

center would give you you know as if

431

00:16:35,330 --> 00:16:39,080

you're winging off a curved thing so you

432

00:16:37,010 --> 00:16:44,270

hit way near the edge of the paddle the

433

00:16:39,080 --> 00:16:45,980

puck goes almost sideways that has I'm

434

00:16:44,270 --> 00:16:48,140

not sure if that kind of paddle has any

435

00:16:45,980 --> 00:16:49,520

kind of name yet but I Dick named it and

436

00:16:48,140 --> 00:16:51,290

we solved this in the forums you can't

437

00:16:49,520 --> 00:16:53,750

wait for him to pick it up but we called

438

00:16:51,290 --> 00:16:55,760

it a fernell paddle and in case anybody

439

00:16:53,750 --> 00:16:57,740

doesn't know what a fernell anything is

440

00:16:55,760 --> 00:17:00,770

this is an interesting bit of trivia if

441

00:16:57,740 --> 00:17:02,060

you look at old lighthouses and they

442

00:17:00,770 --> 00:17:04,220

would have a huge light source like a

443

00:17:02,060 --> 00:17:06,410

big lamp up in the middle but then they

444

00:17:04,220 --> 00:17:09,860

also had some way to beam in a straight

445

00:17:06,410 --> 00:17:11,810

line that you know lantern light out

446

00:17:09,860 --> 00:17:13,760

onto the ocean and the question is how

447

00:17:11,810 --> 00:17:15,740

do you how do you beam light in a

448

00:17:13,760 --> 00:17:18,380

straight line and the answer of course

449

00:17:15,740 --> 00:17:19,699

is lenses but you're making a lighthouse

450

00:17:18,380 --> 00:17:21,650

here these aren't Ben Franklin's

451

00:17:19,699 --> 00:17:23,500

eyeglasses this is a huge lighthouse how

452

00:17:21,650 --> 00:17:26,060

are you gonna get a lens that big

453

00:17:23,500 --> 00:17:28,790

somebody came up with a great idea hey

454

00:17:26,060 --> 00:17:31,970

we can still make a lens that's flat but

455

00:17:28,790 --> 00:17:34,730

let us shave the front edge as if it's

456

00:17:31,970 --> 00:17:36,500

got the same curve of a lens that's you

457

00:17:34,730 --> 00:17:38,810

know truly that big and has all those

458

00:17:36,500 --> 00:17:40,340

curves so if you could get a microscopic

459

00:17:38,810 --> 00:17:42,380

view of a fernell lens and if you look

460

00:17:40,340 --> 00:17:43,860

at old lighthouses they have this the

461

00:17:42,380 --> 00:17:46,649

front of the lens has a texture

462

00:17:43,860 --> 00:17:48,210

that's as if it's curved so that the

463

00:17:46,649 --> 00:17:49,559

light coming through the thing actually

464

00:17:48,210 --> 00:17:51,480

beams in a straight line like a lens

465

00:17:49,559 --> 00:17:52,860

should do it yeah this pong pedal is

466

00:17:51,480 --> 00:17:54,960

precisely that if you could somehow

467

00:17:52,860 --> 00:17:56,490

imagine the texture on the front it's

468

00:17:54,960 --> 00:17:59,190

kind of like if Rennell lens in fact

469

00:17:56,490 --> 00:18:00,929

perfectly one where I you know if a

470

00:17:59,190 --> 00:18:03,600

marble hits a fernell lens it'll do

471

00:18:00,929 --> 00:18:05,850

exactly like it like it would be hitting

472

00:18:03,600 --> 00:18:07,380

this paddle anyway that problem I

473

00:18:05,850 --> 00:18:09,840

presume has been cracked and I can't

474

00:18:07,380 --> 00:18:11,760

wait to see the end of Teri's next

475

00:18:09,840 --> 00:18:13,890

lesson hopefully involving this alright

476

00:18:11,760 --> 00:18:16,139

so that about covers it for news as we

477

00:18:13,890 --> 00:18:17,700

call it there's you know many dozens of

478

00:18:16,139 --> 00:18:20,370

more items that we could have hit so uh

479

00:18:17,700 --> 00:18:22,080

no offense to any person or any posts

480

00:18:20,370 --> 00:18:24,149

that wasn't explicitly mentioned but

481

00:18:22,080 --> 00:18:27,539

this is just my personal quick take on

482

00:18:24,149 --> 00:18:29,850

what I found my time most spent with so

483

00:18:27,539 --> 00:18:31,710

all right we'll move on to our perhaps

484

00:18:29,850 --> 00:18:34,320

main feature of the day and that is

485

00:18:31,710 --> 00:18:36,659

screen modes so that's today's episode

486

00:18:34,320 --> 00:18:39,480

main topic let's talk about stream modes

487

00:18:36,659 --> 00:18:41,190

what they are we began this episode by

488

00:18:39,480 --> 00:18:43,409

asking what's the best screen mode for

489

00:18:41,190 --> 00:18:46,950

your program but why should that matter

490

00:18:43,409 --> 00:18:49,200

in 2020 so maybe we should go a little

491

00:18:46,950 --> 00:18:52,529

bit over about what screen the screen

492

00:18:49,200 --> 00:18:55,559

statement used to do back in the day of

493

00:18:52,529 --> 00:18:59,370

cue basic and quick basic armed parent

494

00:18:55,559 --> 00:19:01,169

languages so basically screen is the

495

00:18:59,370 --> 00:19:04,860

command that would instruct the compiler

496

00:19:01,169 --> 00:19:06,809

to change to a graphics mode if you just

497

00:19:04,860 --> 00:19:10,169

started a cue basic program back in the

498

00:19:06,809 --> 00:19:13,110

day you would have a text screen you

499

00:19:10,169 --> 00:19:15,000

would have 80 columns by 25 rolls and

500

00:19:13,110 --> 00:19:17,130

you would be able to print anywhere on

501

00:19:15,000 --> 00:19:19,289

the screen with any color you want it

502

00:19:17,130 --> 00:19:24,059

according to the palette you would have

503

00:19:19,289 --> 00:19:27,000

a handful of colors to choose from which

504

00:19:24,059 --> 00:19:30,630

were 16 by the way and then you can have

505

00:19:27,000 --> 00:19:32,669

16 colors for foreground 8 colors for

506

00:19:30,630 --> 00:19:34,500

background and then you could print

507

00:19:32,669 --> 00:19:37,620

anywhere that's basic screen zero

508

00:19:34,500 --> 00:19:41,760

we even have beats in the forums who is

509

00:19:37,620 --> 00:19:44,370

a screen 0 enthusiastic as all you ever

510

00:19:41,760 --> 00:19:47,460

need is a text screen to bring on for

511

00:19:44,370 --> 00:19:49,289

anything you want to code but that's of

512

00:19:47,460 --> 00:19:53,250

course very limiting if you want to do a

513

00:19:49,289 --> 00:19:55,950

game for example so you also get a you

514

00:19:53,250 --> 00:19:56,789

also get a flashing colors - oh yeah

515

00:19:55,950 --> 00:19:57,330

yeah

516

00:19:56,789 --> 00:20:00,510

if you

517

00:19:57,330 --> 00:20:03,570

beyond index 16 for collars they start

518

00:20:00,510 --> 00:20:05,190

flashing or depending on how good your

519

00:20:03,570 --> 00:20:09,030

computer back in the day was you could

520

00:20:05,190 --> 00:20:11,820

get high intensity colors too we can

521

00:20:09,030 --> 00:20:14,940

still do that emulates that in Cuba 64

522

00:20:11,820 --> 00:20:16,680

these days but that was about it so if

523

00:20:14,940 --> 00:20:18,990

there was a warning on your screen you

524

00:20:16,680 --> 00:20:23,610

could make it blink but pretty limiting

525

00:20:18,990 --> 00:20:26,040

still and then we had screen modes to

526

00:20:23,610 --> 00:20:31,380

switch to graphic modes or games could

527

00:20:26,040 --> 00:20:34,410

be written on if anyone ever tried to go

528

00:20:31,380 --> 00:20:37,200

deep into gorilla dot base you would see

529

00:20:34,410 --> 00:20:41,310

that there is a routine there to detect

530

00:20:37,200 --> 00:20:43,800

your best graphics adapter how much how

531

00:20:41,310 --> 00:20:46,830

many colors your your system could

532

00:20:43,800 --> 00:20:49,020

display all of those things were would

533

00:20:46,830 --> 00:20:51,750

affect which screen mode you would go

534

00:20:49,020 --> 00:20:54,600

into so anything that's not screen zero

535

00:20:51,750 --> 00:20:57,810

is a graphics mode back in the day we

536

00:20:54,600 --> 00:21:00,300

had screen one string to even back in

537

00:20:57,810 --> 00:21:02,850

our days using Q basic and Cuba skew

538

00:21:00,300 --> 00:21:04,890

quick basic we already didn't have

539

00:21:02,850 --> 00:21:07,110

screen three or four I think they were

540

00:21:04,890 --> 00:21:09,900

limited to some very specific hardware

541

00:21:07,110 --> 00:21:13,200

nobody ever saw in person at least not

542

00:21:09,900 --> 00:21:17,910

me and then we had screen 7 which would

543

00:21:13,200 --> 00:21:21,240

provide very low resolutions but more

544

00:21:17,910 --> 00:21:25,170

colors then there was screen 11 screen

545

00:21:21,240 --> 00:21:28,890

12 which had higher resolution but color

546

00:21:25,170 --> 00:21:34,140

limitations and the glorious screen 13

547

00:21:28,890 --> 00:21:36,890

which is also known as modes 13 and we

548

00:21:34,140 --> 00:21:38,970

know it as screen 13 but many games

549

00:21:36,890 --> 00:21:43,350

commercial games back in the day were

550

00:21:38,970 --> 00:21:46,860

programmed in mode 13 but screen 3 which

551

00:21:43,350 --> 00:21:50,760

I actually had allowed for 4 colors and

552

00:21:46,860 --> 00:21:54,960

B black C n magenta and white and it was

553

00:21:50,760 --> 00:21:58,320

a cg 20 by 200 yeah you know that was a

554

00:21:54,960 --> 00:22:00,750

screen mode 3 for at least the computer

555

00:21:58,320 --> 00:22:04,710

I grew up with so Mecca mine day I had a

556

00:22:00,750 --> 00:22:07,920

PC XT which was an IBM emulated clone an

557

00:22:04,710 --> 00:22:09,690

IBM clone and all screen modes look the

558

00:22:07,920 --> 00:22:10,950

same to me except the ones that were

559

00:22:09,690 --> 00:22:14,070

incompatible and then I would

560

00:22:10,950 --> 00:22:15,540

have to turn the computer off and turn

561

00:22:14,070 --> 00:22:18,630

it back on so I could see things again

562

00:22:15,540 --> 00:22:20,580

so back in my days that were all the

563

00:22:18,630 --> 00:22:24,690

same but screen 13 was the glory because

564

00:22:20,580 --> 00:22:27,470

you could get a whooping 256 colors with

565

00:22:24,690 --> 00:22:29,610

it full palette you could use four

566

00:22:27,470 --> 00:22:31,440

amazing games which I don't remember

567

00:22:29,610 --> 00:22:34,290

anybody really using to the full

568

00:22:31,440 --> 00:22:36,990

potential back in the day so that's

569

00:22:34,290 --> 00:22:39,360

basically screen modes for legacy mode

570

00:22:36,990 --> 00:22:41,820

on our wiki you have a very

571

00:22:39,360 --> 00:22:43,860

comprehensive list of how these modes

572

00:22:41,820 --> 00:22:46,050

used to be how many colors they

573

00:22:43,860 --> 00:22:48,540

supported etc so this is for back in the

574

00:22:46,050 --> 00:22:50,070

day I was always terrified to modify

575

00:22:48,540 --> 00:22:52,320

gorillas just because I was way too

576

00:22:50,070 --> 00:22:53,850

young and like if my dad came to run the

577

00:22:52,320 --> 00:22:56,310

game or something and it didn't work I'd

578

00:22:53,850 --> 00:22:58,800

probably be busted but I remember screen

579

00:22:56,310 --> 00:23:00,450

13 fondly because it was the plasma

580

00:22:58,800 --> 00:23:03,030

screen right that was the one that had

581

00:23:00,450 --> 00:23:04,410

so many cook yeah you had so many colors

582

00:23:03,030 --> 00:23:06,750

and you could do the technique of

583

00:23:04,410 --> 00:23:08,670

palette rotation where this just blew my

584

00:23:06,750 --> 00:23:10,530

mind as a kid it's like how do those

585

00:23:08,670 --> 00:23:13,710

colors move into each other so smoothly

586

00:23:10,530 --> 00:23:16,470

because I grew up in the paradigm of ok

587

00:23:13,710 --> 00:23:18,270

line here circle here pset here but how

588

00:23:16,470 --> 00:23:20,220

is this blending going on but then I

589

00:23:18,270 --> 00:23:22,290

realized oh this is palette rotation you

590

00:23:20,220 --> 00:23:24,210

sort of draw it once and then let all

591

00:23:22,290 --> 00:23:26,490

the colors just kind of cycle through

592

00:23:24,210 --> 00:23:28,560

and it was an amazing trick and explain

593

00:23:26,490 --> 00:23:29,880

the world away coders are suddenly way

594

00:23:28,560 --> 00:23:32,040

less clever because oh my god I think

595

00:23:29,880 --> 00:23:34,500

you're just doing that but yeah screen

596

00:23:32,040 --> 00:23:37,620

13 it's an eye-opener for such reasons

597

00:23:34,500 --> 00:23:40,950

and that's as far as we could get back

598

00:23:37,620 --> 00:23:44,550

in the day regarding number of colors

599

00:23:40,950 --> 00:23:47,700

for example but nowadays it's 20/20 and

600

00:23:44,550 --> 00:23:50,820

we have computers with amazing graphical

601

00:23:47,700 --> 00:23:55,160

capabilities we were running our screens

602

00:23:50,820 --> 00:23:58,440

at High Definition mode all of that and

603

00:23:55,160 --> 00:24:00,780

there it makes no sense to be restrained

604

00:23:58,440 --> 00:24:04,140

by restrictions from the past by

605

00:24:00,780 --> 00:24:05,880

limitations of the past right so imagine

606

00:24:04,140 --> 00:24:08,880

for example you bring a program from

607

00:24:05,880 --> 00:24:12,060

your old glorious QBasic days into Cuba

608

00:24:08,880 --> 00:24:15,570

64 chances are it's going to compile

609

00:24:12,060 --> 00:24:19,590

fine it's going to run fine but in a

610

00:24:15,570 --> 00:24:21,830

tiny window even screen 13 if you run a

611

00:24:19,590 --> 00:24:24,990

program that was created in screen 13

612

00:24:21,830 --> 00:24:28,620

today it's 320

613

00:24:24,990 --> 00:24:31,260

pixels by 200 pixels tall so that's

614

00:24:28,620 --> 00:24:33,179

nothing it's not even an advertisement

615

00:24:31,260 --> 00:24:35,790

on a webpage these days because those

616

00:24:33,179 --> 00:24:37,500

are bigger so it's really gonna look

617

00:24:35,790 --> 00:24:40,770

shockingly small and you're going to

618

00:24:37,500 --> 00:24:42,929

think oh this could be 64 thing promised

619

00:24:40,770 --> 00:24:45,350

me I would play my old games and it

620

00:24:42,929 --> 00:24:47,850

fooled me but hold on hold your horses

621

00:24:45,350 --> 00:24:50,820

there are many techniques we can use for

622

00:24:47,850 --> 00:24:54,809

example to increase that very easily

623

00:24:50,820 --> 00:24:57,510

would be 64 one example if you have an

624

00:24:54,809 --> 00:25:00,660

old program you want to run you have a

625

00:24:57,510 --> 00:25:03,420

meta command which is resize so you just

626

00:25:00,660 --> 00:25:06,990

start to program with a dollar sign the

627

00:25:03,420 --> 00:25:09,540

word resize column and the word smooth

628

00:25:06,990 --> 00:25:12,059

for example you can check out the resize

629

00:25:09,540 --> 00:25:14,340

page on the wiki for more details but

630

00:25:12,059 --> 00:25:17,309

that automatically makes your screen 13

631

00:25:14,340 --> 00:25:19,620

program resizable and stretchable and

632

00:25:17,309 --> 00:25:21,870

that's going to make it bring back the

633

00:25:19,620 --> 00:25:23,400

experience from back in the day so

634

00:25:21,870 --> 00:25:26,280

that's already something first

635

00:25:23,400 --> 00:25:29,870

hand first tip we can give you today is

636

00:25:26,280 --> 00:25:33,000

that you can resize your old screen

637

00:25:29,870 --> 00:25:35,640

legacy screen mode programs so that they

638

00:25:33,000 --> 00:25:37,920

can run fullscreen on your HD computer

639

00:25:35,640 --> 00:25:40,230

these days we also have a full screen

640

00:25:37,920 --> 00:25:42,030

now you can actually relive it like you

641

00:25:40,230 --> 00:25:43,350

would have had to back in the day when

642

00:25:42,030 --> 00:25:45,690

it take up the entire screen no matter

643

00:25:43,350 --> 00:25:47,460

what which can help with those old

644

00:25:45,690 --> 00:25:49,080

programs if you wanted to bring them

645

00:25:47,460 --> 00:25:49,830

back and get yeah you don't even have to

646

00:25:49,080 --> 00:25:52,860

change anything

647

00:25:49,830 --> 00:25:54,600

uh-huh oh and I notice if you cycle

648

00:25:52,860 --> 00:25:56,160

through alt-enter if you just do the

649

00:25:54,600 --> 00:25:58,320

full screen shortcut you'll get

650

00:25:56,160 --> 00:25:59,700

different versions of full screen you'll

651

00:25:58,320 --> 00:26:01,020

get it dominating the whole screen

652

00:25:59,700 --> 00:26:03,540

you'll get stretched you'll get

653

00:26:01,020 --> 00:26:04,710

unstretched so people can just play with

654

00:26:03,540 --> 00:26:07,020

that until they land on the one they

655

00:26:04,710 --> 00:26:09,120

like if you hit alt enter it's going to

656

00:26:07,020 --> 00:26:12,000

cycle through four modes it's going to

657

00:26:09,120 --> 00:26:13,620

fill your screen second time you hit alt

658

00:26:12,000 --> 00:26:16,350

enter it's going to fill your screen but

659

00:26:13,620 --> 00:26:19,290

with entire lysing third time it's going

660

00:26:16,350 --> 00:26:21,510

to be full screen but you're going to

661

00:26:19,290 --> 00:26:24,240

see black bars on the sides so that it

662

00:26:21,510 --> 00:26:26,910

doesn't lose aspect ratio and fourth

663

00:26:24,240 --> 00:26:29,580

mode is the same mode that doesn't lose

664

00:26:26,910 --> 00:26:32,400

eyes aspect ratio butts to ads and tile

665

00:26:29,580 --> 00:26:34,620

eyes in a filter that's on OpenGL side

666

00:26:32,400 --> 00:26:38,970

we don't even touch that internal it's

667

00:26:34,620 --> 00:26:41,280

all by OpenGL but yeah so you see you

668

00:26:38,970 --> 00:26:43,350

you don't need even to change old code

669

00:26:41,280 --> 00:26:44,820

just hate alt-enter and you'll be fine

670

00:26:43,350 --> 00:26:47,370

yeah that's I'd say a pretty

671

00:26:44,820 --> 00:26:48,900

comprehensive summary and that's only so

672

00:26:47,370 --> 00:26:51,299

everything we've said so far only

673

00:26:48,900 --> 00:26:54,090

regards legacy screen mode so that's

674

00:26:51,299 --> 00:26:56,330

only appealing to when the first line of

675

00:26:54,090 --> 00:26:59,309

your program is you know screen number

676

00:26:56,330 --> 00:27:01,919

but now we've got a whole new paradigm

677

00:26:59,309 --> 00:27:03,900

of setting screens which I guess we'll

678

00:27:01,919 --> 00:27:07,230

call the the wiki calls the custom

679

00:27:03,900 --> 00:27:10,230

screen mode and this one is entirely

680

00:27:07,230 --> 00:27:13,500

more powerful and flexible yeah so the

681

00:27:10,230 --> 00:27:17,520

thing is bringing back your old programs

682

00:27:13,500 --> 00:27:19,620

is why Cuba 64 was born but Cuba 64

683

00:27:17,520 --> 00:27:21,960

evolved enough so that you can start a

684

00:27:19,620 --> 00:27:23,909

new program start writing again today

685

00:27:21,960 --> 00:27:25,590

and you don't have to be bound by

686

00:27:23,909 --> 00:27:28,140

anything from the past if you don't want

687

00:27:25,590 --> 00:27:30,750

to you can use the same ideas from the

688

00:27:28,140 --> 00:27:33,510

past but in a modern way and that brings

689

00:27:30,750 --> 00:27:36,600

us to 32-bit screen modes our screens

690

00:27:33,510 --> 00:27:38,400

today are working on the in 32-bit color

691

00:27:36,600 --> 00:27:40,980

mode which means that we can have

692

00:27:38,400 --> 00:27:43,710

I don't know 65 million colors is that

693

00:27:40,980 --> 00:27:48,179

the math I don't remember know the exact

694

00:27:43,710 --> 00:27:51,390

number 16 oh it's 16 million colors yes

695

00:27:48,179 --> 00:27:57,210

so you can get all of that by simply

696

00:27:51,390 --> 00:28:01,049

mixing 256 levels of RAD 306 56 levels

697

00:27:57,210 --> 00:28:03,960

of green 256 levels of blue red green

698

00:28:01,049 --> 00:28:06,419

blue RGB for everyone and you can do

699

00:28:03,960 --> 00:28:09,809

that with QB 64 pretty easily we have

700

00:28:06,419 --> 00:28:12,210

the new image statement in Cuba 64 with

701

00:28:09,809 --> 00:28:16,470

the new image command you can create an

702

00:28:12,210 --> 00:28:19,350

image in memory and Cuba 64 can load a

703

00:28:16,470 --> 00:28:22,140

PNG image from your disk or a bitmap

704

00:28:19,350 --> 00:28:25,260

file or a JPEG whatever image you can

705

00:28:22,140 --> 00:28:28,289

you want to with the load image command

706

00:28:25,260 --> 00:28:31,770

but Cuba 64 can also create a new image

707

00:28:28,289 --> 00:28:35,640

in memory and these new images they can

708

00:28:31,770 --> 00:28:37,500

have any they can be any amount of

709

00:28:35,640 --> 00:28:41,450

pixels wide and any amount of pixels

710

00:28:37,500 --> 00:28:44,130

tall and they can be created using

711

00:28:41,450 --> 00:28:47,039

32-bit mode which means they're going to

712

00:28:44,130 --> 00:28:51,350

be able to use any color available by

713

00:28:47,039 --> 00:28:53,510

mixing RGB red green and blue so

714

00:28:51,350 --> 00:28:57,290

these days if you want to create a

715

00:28:53,510 --> 00:29:00,100

program screen that fills your HD

716

00:28:57,290 --> 00:29:05,140

monitor you can just create a new screen

717

00:29:00,100 --> 00:29:08,930

new image and then you specify 1920 by

718

00:29:05,140 --> 00:29:10,340

1080 for example and then 32 that's

719

00:29:08,930 --> 00:29:13,940

basically what you're gonna have to type

720

00:29:10,340 --> 00:29:19,910

screen new image open a bracket open

721

00:29:13,940 --> 00:29:23,420

parenthesis 1920 comma 1080 comma 32 as

722

00:29:19,910 --> 00:29:25,370

soon as Cuba 64 runs that you're going

723

00:29:23,420 --> 00:29:28,490

to have a screen that's as big as your

724

00:29:25,370 --> 00:29:31,900

monitor and you can use any color

725

00:29:28,490 --> 00:29:36,250

available by using the RGB 32 command

726

00:29:31,900 --> 00:29:38,870

that's how programs can make use of any

727

00:29:36,250 --> 00:29:41,210

color available on your system these

728

00:29:38,870 --> 00:29:43,970

days but you can also use that for a

729

00:29:41,210 --> 00:29:46,100

text mode too so if you but when you do

730

00:29:43,970 --> 00:29:47,420

a text mode you're not specifying a

731

00:29:46,100 --> 00:29:50,930

pixel width and height you're specifying

732

00:29:47,420 --> 00:29:53,570

your columns and she's why the week he

733

00:29:50,930 --> 00:29:56,090

calls it the constant mode screen text

734

00:29:53,570 --> 00:30:00,200

mode back in the day would have to be 80

735

00:29:56,090 --> 00:30:02,960

columns by 25 rows or 80 columns by 43

736

00:30:00,200 --> 00:30:05,870

rows or 80 columns by 50 rows that was

737

00:30:02,960 --> 00:30:07,910

the default nowadays with the new image

738

00:30:05,870 --> 00:30:11,330

command you can also create a constant

739

00:30:07,910 --> 00:30:13,970

mode with any amount of columns or rows

740

00:30:11,330 --> 00:30:16,310

just limited by your actual screen your

741

00:30:13,970 --> 00:30:19,790

actual monitor and instead of specifying

742

00:30:16,310 --> 00:30:22,940

32 for mode for 32-bit mode you specify

743

00:30:19,790 --> 00:30:27,650

0 then you created a custom screen 0

744

00:30:22,940 --> 00:30:30,530

mode that can fit modern screens to hey

745

00:30:27,650 --> 00:30:33,080

yesin so now not only are you limited to

746

00:30:30,530 --> 00:30:34,820

just one screen you can actually have

747

00:30:33,080 --> 00:30:37,580

multiple screens there's multiple images

748

00:30:34,820 --> 00:30:38,690

open using handles and just cycling just

749

00:30:37,580 --> 00:30:41,600

switching through the handles as you

750

00:30:38,690 --> 00:30:44,270

need them and you can even use certain

751

00:30:41,600 --> 00:30:46,160

commands like point and your graphics

752

00:30:44,270 --> 00:30:48,890

commands on different handles not even

753

00:30:46,160 --> 00:30:51,560

the screen you see using commands like

754

00:30:48,890 --> 00:30:52,970

destination and source - it's sort of

755

00:30:51,560 --> 00:30:55,490

sort of get that right I don't do a

756

00:30:52,970 --> 00:30:57,380

whole ton of graphics program I do some

757

00:30:55,490 --> 00:30:59,720

but it's all prototypes so you're

758

00:30:57,380 --> 00:31:03,770

telling me that I can't wait to actually

759

00:30:59,720 --> 00:31:06,380

try this so you can write a program

760

00:31:03,770 --> 00:31:08,720

that has graphical output that you put

761

00:31:06,380 --> 00:31:10,100

to a screen but the words screen is in

762

00:31:08,720 --> 00:31:11,960

quotes here you don't mean the monitor

763

00:31:10,100 --> 00:31:15,020

you just mean sort of a virtual image

764

00:31:11,960 --> 00:31:16,460

and I can write to that or I can write

765

00:31:15,020 --> 00:31:19,100

to a separate screen or to a different

766

00:31:16,460 --> 00:31:22,120

size screen and the one that I actually

767

00:31:19,100 --> 00:31:25,580

get on my monitor that I can tap on is

768

00:31:22,120 --> 00:31:28,460

selectable and this is using handles

769

00:31:25,580 --> 00:31:31,430

that I believe are strictly long type is

770

00:31:28,460 --> 00:31:33,800

that resonating with your explanation

771

00:31:31,430 --> 00:31:35,450

here yeah so when you use the new image

772

00:31:33,800 --> 00:31:38,060

Coleman it's going to return you a

773

00:31:35,450 --> 00:31:40,100

handle which is just a long a variable

774

00:31:38,060 --> 00:31:42,920

that's going to store a number a

775

00:31:40,100 --> 00:31:45,170

negative number indicating that is the

776

00:31:42,920 --> 00:31:47,690

the representation of the imaging memory

777

00:31:45,170 --> 00:31:50,660

and after you do that you can create

778

00:31:47,690 --> 00:31:53,090

several images in memory and alternate

779

00:31:50,660 --> 00:31:55,130

them by using screen and then specifying

780

00:31:53,090 --> 00:31:57,260

the handle that you have so what this

781

00:31:55,130 --> 00:31:59,690

what this explicitly doesn't solve is

782

00:31:57,260 --> 00:32:02,450

the question of multiple windows in QB

783

00:31:59,690 --> 00:32:05,900

64 can I have one exe with several

784

00:32:02,450 --> 00:32:08,630

windows going still no but what it does

785

00:32:05,900 --> 00:32:10,780

solve is can I have one window as if

786

00:32:08,630 --> 00:32:13,670

there are several programs running in it

787

00:32:10,780 --> 00:32:15,680

yes if you layer your graphics layers

788

00:32:13,670 --> 00:32:17,960

properly with several screen and they

789

00:32:15,680 --> 00:32:20,000

are yeah you can make games with like

790

00:32:17,960 --> 00:32:22,730

scrolling like parallax scrolling they

791

00:32:20,000 --> 00:32:25,670

can have multiple things moving in

792

00:32:22,730 --> 00:32:27,860

different speeds and orientations all at

793

00:32:25,670 --> 00:32:30,710

the same time by using differences now

794

00:32:27,860 --> 00:32:32,030

how you made Dragon Warrior yeah because

795

00:32:30,710 --> 00:32:35,510

there's different layers for the

796

00:32:32,030 --> 00:32:37,340

background and the sprites and different

797

00:32:35,510 --> 00:32:40,880

items on the screen are all in different

798

00:32:37,340 --> 00:32:42,950

layers so I just composite them very

799

00:32:40,880 --> 00:32:46,130

interest so so this so you mean to say

800

00:32:42,950 --> 00:32:48,260

that one screen doesn't completely

801

00:32:46,130 --> 00:32:49,850

overwrite another so you can have

802

00:32:48,260 --> 00:32:51,620

pockets of it that are transparent to

803

00:32:49,850 --> 00:32:53,780

have something draw the background and

804

00:32:51,620 --> 00:32:55,960

then the sprites in the foreground so

805

00:32:53,780 --> 00:32:58,010

okay so maybe we'll hit that in a later

806

00:32:55,960 --> 00:32:59,810

episode where we can talk about

807

00:32:58,010 --> 00:33:02,120

transparency I know that works in colors

808

00:32:59,810 --> 00:33:04,820

and in put image for example or map

809

00:33:02,120 --> 00:33:07,640

triangle if you like but I never knew

810

00:33:04,820 --> 00:33:09,920

that for whole screens that's considered

811

00:33:07,640 --> 00:33:12,770

as soon as it creates a new image it's

812

00:33:09,920 --> 00:33:15,770

going to be fully transparent if you

813

00:33:12,770 --> 00:33:17,539

want it to be not transparent you have

814

00:33:15,770 --> 00:33:20,359

to paint it with the collar or use

815

00:33:17,539 --> 00:33:23,179

CLS so that it's going to clean the

816

00:33:20,359 --> 00:33:25,519

screen and make it black for example but

817

00:33:23,179 --> 00:33:27,350

a new image is essentially a transparent

818

00:33:25,519 --> 00:33:30,529

image a transparent canvas you can paint

819

00:33:27,350 --> 00:33:32,809

on and if you if you create a new handle

820

00:33:30,529 --> 00:33:36,220

a new image handle and then you you hit

821

00:33:32,809 --> 00:33:38,869

screen handle you're going to create

822

00:33:36,220 --> 00:33:41,029

you're going to make you be 64 alternate

823

00:33:38,869 --> 00:33:42,649

to that screen which means that the

824

00:33:41,029 --> 00:33:44,419

window is going to be the size of the

825

00:33:42,649 --> 00:33:46,399

image you created but then of course

826

00:33:44,419 --> 00:33:49,340

it's not gonna be transparent but if you

827

00:33:46,399 --> 00:33:52,099

create multiple images you can use boot

828

00:33:49,340 --> 00:33:53,539

image to put them on top of each other

829

00:33:52,099 --> 00:33:55,879

and they're gonna be transparent unless

830

00:33:53,539 --> 00:33:58,789

you have already drawn upon it very

831

00:33:55,879 --> 00:34:00,259

interesting that's a very flexible use

832

00:33:58,789 --> 00:34:03,379

of this whole thing I realized I've been

833

00:34:00,259 --> 00:34:05,269

under using our graphics tools for quite

834

00:34:03,379 --> 00:34:09,829

a long time now yeah they've actually

835

00:34:05,269 --> 00:34:12,490

become quite impressive here with QB 64

836

00:34:09,829 --> 00:34:14,659

it's brings a whole new level of powered

837

00:34:12,490 --> 00:34:17,059

basic programming yeah back in the day

838

00:34:14,659 --> 00:34:19,579

you would have to use P copy for example

839

00:34:17,059 --> 00:34:22,280

to have multiple strings but that was to

840

00:34:19,579 --> 00:34:26,179

be limited by the image mode you were on

841

00:34:22,280 --> 00:34:27,889

nowadays B copies limitless and it's not

842

00:34:26,179 --> 00:34:30,319

even recommended usage you should

843

00:34:27,889 --> 00:34:32,809

actually have new images so that you can

844

00:34:30,319 --> 00:34:33,619

draw on just like cobalt Jess does for

845

00:34:32,809 --> 00:34:36,260

Dragon Warrior

846

00:34:33,619 --> 00:34:37,790

but it's only limited really by the

847

00:34:36,260 --> 00:34:39,230

amount of memory you have in your system

848

00:34:37,790 --> 00:34:41,929

so it's pretty powerful

849

00:34:39,230 --> 00:34:44,720

excellent so I suppose there's never a

850

00:34:41,929 --> 00:34:47,869

greater time to insert math into any

851

00:34:44,720 --> 00:34:50,089

discussion that we're having so I might

852

00:34:47,869 --> 00:34:52,819

as well mention that there are several

853

00:34:50,089 --> 00:34:55,909

sometimes competing coordinate systems

854

00:34:52,819 --> 00:34:58,309

going on with graphics modes one for

855

00:34:55,909 --> 00:35:00,829

text and one for graphics it one's more

856

00:34:58,309 --> 00:35:04,069

natural than the other so I guess

857

00:35:00,829 --> 00:35:05,599

starting with the legacy familiar one so

858

00:35:04,069 --> 00:35:07,930

when you want to put text on a certain

859

00:35:05,599 --> 00:35:10,520

part of the screen and in your old

860

00:35:07,930 --> 00:35:12,260

program you would write locate y

861

00:35:10,520 --> 00:35:14,540

coordinate and then x coordinate they

862

00:35:12,260 --> 00:35:16,760

would swap those two and then you know

863

00:35:14,540 --> 00:35:18,740

right here text and when you finally ran

864

00:35:16,760 --> 00:35:21,349

it it would print at whatever row column

865

00:35:18,740 --> 00:35:25,190

that you wanted or column row in that

866

00:35:21,349 --> 00:35:26,900

case we still have that in our modern

867

00:35:25,190 --> 00:35:30,270

graphics modes you can still in the very

868

00:35:26,900 --> 00:35:32,790

same way type locate Y then X and it'll

869

00:35:30,270 --> 00:35:35,160

your text where you want the coordinate

870

00:35:32,790 --> 00:35:37,950

system there is sort of an integer

871

00:35:35,160 --> 00:35:40,950

system where you're only able to print

872

00:35:37,950 --> 00:35:42,119

and I guess integer multiples of the

873

00:35:40,950 --> 00:35:43,410

width of one character

874

00:35:42,119 --> 00:35:46,830

so it's a very terminal like

875

00:35:43,410 --> 00:35:48,510

everything's very column formatted if

876

00:35:46,830 --> 00:35:50,130

you try to print random text it would

877

00:35:48,510 --> 00:35:52,560

eventually just look like a perfect

878

00:35:50,130 --> 00:35:53,880

crossword puzzle of characters they

879

00:35:52,560 --> 00:35:56,310

wouldn't really appear randomly

880

00:35:53,880 --> 00:35:57,990

on-screen but there's another print

881

00:35:56,310 --> 00:36:01,890

statement for that so the underscore

882

00:35:57,990 --> 00:36:04,830

print string treats text more like it

883

00:36:01,890 --> 00:36:06,990

was sent to P set rather than to locate

884

00:36:04,830 --> 00:36:08,820

so what it uses is the same coordinate

885

00:36:06,990 --> 00:36:12,600

system that the graphics system is using

886

00:36:08,820 --> 00:36:15,180

with 0 0 in the top left and max X&Y in

887

00:36:12,600 --> 00:36:17,040

the bottom right corner and with that

888

00:36:15,180 --> 00:36:19,320

using print string your text will appear

889

00:36:17,040 --> 00:36:21,530

on-screen alongside your graphics you

890

00:36:19,320 --> 00:36:24,690

don't have to do a conversion between

891

00:36:21,530 --> 00:36:28,680

text spacing and line width or anything

892

00:36:24,690 --> 00:36:31,440

silly like that I guess my final note on

893

00:36:28,680 --> 00:36:33,270

this and this will make I guess when

894

00:36:31,440 --> 00:36:34,859

mathematicians and engineers encounter

895

00:36:33,270 --> 00:36:36,330

this coordinate system in basic they've

896

00:36:34,859 --> 00:36:38,670

probably been doing this for decades but

897

00:36:36,330 --> 00:36:43,050

a slight facepalm when they notice that

898

00:36:38,670 --> 00:36:45,230

the y-coordinate is reversed this makes

899

00:36:43,050 --> 00:36:47,490

a lot of sense when you borrow from

900

00:36:45,230 --> 00:36:49,920

typewriters or terminals where text

901

00:36:47,490 --> 00:36:52,020

appears at the top end it the newest

902

00:36:49,920 --> 00:36:54,060

stuff appears down bottom so the notion

903

00:36:52,020 --> 00:36:56,580

of increasing Y as you go down is

904

00:36:54,060 --> 00:36:59,040

certainly borrowed from ticker tapes and

905

00:36:56,580 --> 00:37:00,480

terminals and so forth but it's

906

00:36:59,040 --> 00:37:04,200

completely backwards if you're trying to

907

00:37:00,480 --> 00:37:07,980

do any graphics or just visual math

908

00:37:04,200 --> 00:37:11,220

geometry on your screen so what some

909

00:37:07,980 --> 00:37:13,560

people do is write their function such

910

00:37:11,220 --> 00:37:16,140

that they just really imagine the center

911

00:37:13,560 --> 00:37:18,270

of the screen to be 0 0 and the positive

912

00:37:16,140 --> 00:37:20,550

Y Direction to be up just like you would

913

00:37:18,270 --> 00:37:24,119

have on a Cartesian grid and then at the

914

00:37:20,550 --> 00:37:26,700

very very end swap your graphics so that

915

00:37:24,119 --> 00:37:28,890

they appear you know as basic wants to

916

00:37:26,700 --> 00:37:31,590

plot them if any of this sounds foreign

917

00:37:28,890 --> 00:37:33,960

to you and you're already familiar with

918

00:37:31,590 --> 00:37:35,369

using trig functions I'm afraid it could

919

00:37:33,960 --> 00:37:37,830

be too late you may have learned

920

00:37:35,369 --> 00:37:40,380

trigonometry upside down so just be

921

00:37:37,830 --> 00:37:42,540

careful when you're trying to apply math

922

00:37:40,380 --> 00:37:43,800

especially geometry especially trig in

923

00:37:42,540 --> 00:37:45,810

our coordinate says

924

00:37:43,800 --> 00:37:48,020

and especially when you're using other

925

00:37:45,810 --> 00:37:51,510

references because they won't have the

926

00:37:48,020 --> 00:37:53,640

y-axis upside down like we do and if

927

00:37:51,510 --> 00:37:56,160

you're careful about that all is well

928

00:37:53,640 --> 00:37:59,400

end of that particular rent because we

929

00:37:56,160 --> 00:38:01,830

are OpenGL bound and you can't use

930

00:37:59,400 --> 00:38:05,370

OpenGL commands we have effectively two

931

00:38:01,830 --> 00:38:08,430

coordinate systems working in Cuba 64 if

932

00:38:05,370 --> 00:38:10,560

you do any OpenGL coding zero zero is

933

00:38:08,430 --> 00:38:13,680

the center of your string and then it's

934

00:38:10,560 --> 00:38:16,890

as you expect I think right when we

935

00:38:13,680 --> 00:38:18,390

breach into the world of 3d and whatever

936

00:38:16,890 --> 00:38:20,550

GL does it's got to have a clean

937

00:38:18,390 --> 00:38:22,470

interface to the rest of mathematics so

938

00:38:20,550 --> 00:38:24,570

I assume it's obeying things like the

939

00:38:22,470 --> 00:38:26,910

right-hand rule and just the whole slew

940

00:38:24,570 --> 00:38:29,940

of that need to be true about vectors in

941

00:38:26,910 --> 00:38:32,370

coordinates it's and it's no fault of QB

942

00:38:29,940 --> 00:38:33,840

64 for being reverse compatible at the

943

00:38:32,370 --> 00:38:35,910

past we don't want every program being

944

00:38:33,840 --> 00:38:38,310

upside down so it's nobody's fault it's

945

00:38:35,910 --> 00:38:41,310

just a little clunky especially if

946

00:38:38,310 --> 00:38:43,410

you're trying to walk people through the

947

00:38:41,310 --> 00:38:44,880

four steps of trigonometry and explain

948

00:38:43,410 --> 00:38:47,490

how think he's really upset the down and

949

00:38:44,880 --> 00:38:51,380

theta opens backwards and so on and so

950

00:38:47,490 --> 00:38:53,760

on okay so I think we probably covered

951

00:38:51,380 --> 00:38:58,170

we didn't cover anything but we probably

952

00:38:53,760 --> 00:39:00,420

scanned through screen modes and this

953

00:38:58,170 --> 00:39:01,980

probably should raise questions or if it

954

00:39:00,420 --> 00:39:05,730

doesn't raise questions you should spark

955

00:39:01,980 --> 00:39:08,070

discussions and we are up to I mean

956

00:39:05,730 --> 00:39:11,070

let's talk about it right yep oh

957

00:39:08,070 --> 00:39:12,510

absolutely and we could tangent off into

958

00:39:11,070 --> 00:39:14,100

many things related to screen modes

959

00:39:12,510 --> 00:39:16,830

maybe something worth hitting while

960

00:39:14,100 --> 00:39:18,990

we're still connected here is something

961

00:39:16,830 --> 00:39:20,340

that goes along with your main game loop

962

00:39:18,990 --> 00:39:23,370

so if you've got a screen mode you've

963

00:39:20,340 --> 00:39:26,070

got a custom you've got graphics in mind

964

00:39:23,370 --> 00:39:28,260

you're probably looping fast and Kuby 64

965

00:39:26,070 --> 00:39:30,030

is way way faster than its predecessors

966

00:39:28,260 --> 00:39:31,590

so in your main loop of course we're

967

00:39:30,030 --> 00:39:34,260

trying to throttle it down so we use

968

00:39:31,590 --> 00:39:36,540

things like limit or delay if you need

969

00:39:34,260 --> 00:39:37,920

the nature of that kind of slowdown but

970

00:39:36,540 --> 00:39:40,320

the thing I'm trying to highlight now is

971

00:39:37,920 --> 00:39:43,740

display underscore display so this is a

972

00:39:40,320 --> 00:39:45,210

very interesting command where I've seen

973

00:39:43,740 --> 00:39:46,500

a lot of tricks for getting around this

974

00:39:45,210 --> 00:39:49,020

so if you have graphics especially

975

00:39:46,500 --> 00:39:50,910

wireframe graphics this was easier where

976

00:39:49,020 --> 00:39:53,610

how do you avoid back in the day

977

00:39:50,910 --> 00:39:55,290

redrawing we were seen without clearing

978

00:39:53,610 --> 00:39:56,970

the whole screen yeah because clear

979

00:39:55,290 --> 00:39:57,450

screen was not instantaneous and it was

980

00:39:56,970 --> 00:39:59,579

very very

981

00:39:57,450 --> 00:40:01,680

ugly what you sometimes have to do is

982

00:39:59,579 --> 00:40:03,240

create a second world just draw it in

983

00:40:01,680 --> 00:40:05,940

black and then draw your new one over

984

00:40:03,240 --> 00:40:08,609

that at least you didn't flicker but now

985

00:40:05,940 --> 00:40:10,560

we've got this display thing where you

986

00:40:08,609 --> 00:40:12,570

only have to put it once in your loop

987

00:40:10,560 --> 00:40:14,730

it's not a function that takes arguments

988

00:40:12,570 --> 00:40:17,280

it's basically a meta command but you

989

00:40:14,730 --> 00:40:19,320

can use it in different places and any

990

00:40:17,280 --> 00:40:21,960

time the and Phillipe can explain this a

991

00:40:19,320 --> 00:40:24,180

little better but whenever the compiler

992

00:40:21,960 --> 00:40:26,430

comes across display whatever was

993

00:40:24,180 --> 00:40:29,940

hanging in the graphics queue so to

994

00:40:26,430 --> 00:40:31,260

speak will get booted on screen I've run

995

00:40:29,940 --> 00:40:33,089

into this before and I had to learn this

996

00:40:31,260 --> 00:40:34,770

the hard way aware suppose you've got a

997

00:40:33,089 --> 00:40:36,300

program half written and you're

998

00:40:34,770 --> 00:40:37,589

troubleshooting you say ah man I need to

999

00:40:36,300 --> 00:40:39,359

check on this variable I'm just gonna

1000

00:40:37,589 --> 00:40:41,790

put a print statement and then sleep

1001

00:40:39,359 --> 00:40:44,160

right after that variables calculate and

1002

00:40:41,790 --> 00:40:45,810

I'm gonna look at it but then you try it

1003

00:40:44,160 --> 00:40:48,660

and it doesn't show up and you said hey

1004

00:40:45,810 --> 00:40:51,599

man it's display doing this but I notice

1005

00:40:48,660 --> 00:40:53,550

if you just write display right after

1006

00:40:51,599 --> 00:40:55,170

you do your troubleshooting line you

1007

00:40:53,550 --> 00:40:57,180

know print variable that I'm looking at

1008

00:40:55,170 --> 00:40:58,500

and then another display line you can

1009

00:40:57,180 --> 00:41:00,570

just put as many as you want

1010

00:40:58,500 --> 00:41:03,810

you'll get your output you'll get your

1011

00:41:00,570 --> 00:41:05,250

troubleshooting back so that can can

1012

00:41:03,810 --> 00:41:07,380

that can save people a lot of headache

1013

00:41:05,250 --> 00:41:09,480

if debugging becomes kind of a pain if

1014

00:41:07,380 --> 00:41:12,960

you're in this new graphics painful

1015

00:41:09,480 --> 00:41:14,400

behavior is you draw something or you

1016

00:41:12,960 --> 00:41:16,380

print something it's gonna be

1017

00:41:14,400 --> 00:41:18,599

immediately there because it's Aalto

1018

00:41:16,380 --> 00:41:20,339

display which means that QB 64 is

1019

00:41:18,599 --> 00:41:21,869

constantly refreshing the string but

1020

00:41:20,339 --> 00:41:24,060

that's exactly what causes the

1021

00:41:21,869 --> 00:41:25,560

flickering so when you call display for

1022

00:41:24,060 --> 00:41:27,930

the first time in your program you

1023

00:41:25,560 --> 00:41:29,760

disable auto display so every time you

1024

00:41:27,930 --> 00:41:31,859

want give you 64 to flush the buffer

1025

00:41:29,760 --> 00:41:33,660

back to the screen to the physical

1026

00:41:31,859 --> 00:41:35,369

screen you need to call display again

1027

00:41:33,660 --> 00:41:38,130

which is why it's always a good idea to

1028

00:41:35,369 --> 00:41:41,010

make display the last statement in your

1029

00:41:38,130 --> 00:41:42,810

loop if you have a draw loop a main loop

1030

00:41:41,010 --> 00:41:45,690

in your game or whatever program you're

1031

00:41:42,810 --> 00:41:47,760

writing finish it with display a call to

1032

00:41:45,690 --> 00:41:50,880

display so that everything you just draw

1033

00:41:47,760 --> 00:41:53,190

if you've just drawn will be flushed to

1034

00:41:50,880 --> 00:41:56,220

the screen and display to the user this

1035

00:41:53,190 --> 00:41:57,660

makes me wonder I don't know if this

1036

00:41:56,220 --> 00:42:00,540

ends up mattering but if you have

1037

00:41:57,660 --> 00:42:04,230

display and limit in there same loop to

1038

00:42:00,540 --> 00:42:06,150

limit the FPS does the order of those to

1039

00:42:04,230 --> 00:42:08,099

matter will you get a lag in graphics if

1040

00:42:06,150 --> 00:42:09,380

you limit first or is limit treated more

1041

00:42:08,099 --> 00:42:11,600

meta to that

1042

00:42:09,380 --> 00:42:13,550

it's it's more of a personal preference

1043

00:42:11,600 --> 00:42:14,930

here when I'm writing a game or anything

1044

00:42:13,550 --> 00:42:15,890

that's going to display something to

1045

00:42:14,930 --> 00:42:20,540

descri in a loop

1046

00:42:15,890 --> 00:42:23,510

I usually write a skeleton envelope

1047

00:42:20,540 --> 00:42:28,550

beginning with du and then I finish it

1048

00:42:23,510 --> 00:42:30,740

with display then limit then loop so

1049

00:42:28,550 --> 00:42:34,580

that's usually how I go about it I do

1050

00:42:30,740 --> 00:42:37,970

all my coding my computational stuff and

1051

00:42:34,580 --> 00:42:40,400

my drawing commands in between the dew

1052

00:42:37,970 --> 00:42:42,230

line and the limits like I'm sorry at

1053

00:42:40,400 --> 00:42:44,840

the dew line in the display line and

1054

00:42:42,230 --> 00:42:47,390

then comes limit and a loop that's

1055

00:42:44,840 --> 00:42:49,010

usually how I go about it I don't know

1056

00:42:47,390 --> 00:42:53,480

I've already seen people start with a

1057

00:42:49,010 --> 00:42:55,340

display in their loop block it really

1058

00:42:53,480 --> 00:42:57,020

doesn't make a difference the thing is

1059

00:42:55,340 --> 00:43:00,020

you shouldn't add display after CLS

1060

00:42:57,020 --> 00:43:01,490

after you clean the screen if you call

1061

00:43:00,020 --> 00:43:03,890

display it's gonna be blank forever

1062

00:43:01,490 --> 00:43:07,460

that's just the thing I would warn

1063

00:43:03,890 --> 00:43:10,240

against so that begins to scratch the

1064

00:43:07,460 --> 00:43:13,970

surface on QB 64 graphical capabilities

1065

00:43:10,240 --> 00:43:16,010

but well I think it's I hope at least

1066

00:43:13,970 --> 00:43:17,780

it's enlightening to some and if you

1067

00:43:16,010 --> 00:43:20,720

guys have any questions or maybe you can

1068

00:43:17,780 --> 00:43:23,360

correct on something please leave it in

1069

00:43:20,720 --> 00:43:24,980

the comments below all right I think

1070

00:43:23,360 --> 00:43:26,270

yeah that's a pretty good skimming of

1071

00:43:24,980 --> 00:43:28,940

the topic and if anybody is interested

1072

00:43:26,270 --> 00:43:30,650

in hinting at what we should cover next

1073

00:43:28,940 --> 00:43:33,020

week we discover this more or less on

1074

00:43:30,650 --> 00:43:35,210

the fly whatever we want to cover so if

1075

00:43:33,020 --> 00:43:37,640

anybody wants to hear any particular

1076

00:43:35,210 --> 00:43:39,310

subject fleshed out to the best of our

1077

00:43:37,640 --> 00:43:41,650

ability you know what we're good for

1078

00:43:39,310 --> 00:43:44,960

suggest it will I will probably hit it

1079

00:43:41,650 --> 00:43:46,700

so this is QB 64 report I'm Felipe -

1080

00:43:44,960 --> 00:43:48,440

these are my friends bill and Dave and

1081

00:43:46,700 --> 00:43:51,380

we thank you guys for listening thanks

1082

00:43:48,440 --> 00:43:53,510

everybody thank you guys and thanks to

1083

00:43:51,380 --> 00:43:56,890

everyone supporting us on patreon com

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00:43:53,510 --> 00:43:56,890

see you guys next episode