





$n = \text{number of samples}$

$$n = \frac{(\text{time vector})}{50} \approx 50 \text{ windows for time vector}$$

→ for loop will go to each window

|         |                |
|---------|----------------|
| 2 - ʊ   | <u>Book</u>    |
| 3 - uː  | <u>too</u>     |
| 4 - Iə  | <u>here</u>    |
| 5 - eɪ  | <u>Day</u>     |
| 6 - e   | <u>men</u>     |
| 7 - ə   | <u>America</u> |
| 8 - ɜː  | <u>Word</u>    |
| 9 - ɔː  | <u>sort</u>    |
| 10 - ʊə | <u>tour</u>    |
| 11 - ɔɪ | <u>boy</u>     |
| 12 - əʊ | <u>go</u>      |
| 13 - æ  | <u>cat</u>     |
| 14 - ʌ  | <u>but</u>     |
| 15 - ɑː | <u>part</u>    |
| 16 - ɒ  | <u>not</u>     |
| 17 - eə | <u>wear</u>    |
| 18 - aɪ | <u>my</u>      |
| 19 - aʊ | <u>how</u>     |

0-38 Hz yellow  
 0-57 Hz yellow-ish  
 -12-12 Hz

my voice

Phedo

|         |                |
|---------|----------------|
| 2 - ʊ   | <u>Book</u>    |
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| 16 - ɒ  | <u>not</u>     |
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| 18 - aɪ | <u>my</u>      |
| 19 - aʊ | <u>how</u>     |

12-57 Hz

12-68 Hz yellowish

12-59 Hz yellowish

35-82 Hz yellow

58.6-82 Hz yellow

35-68 yellow

35-59 yellow

175.78 Hz - 199 Hz Blue



$$Nfft = 2^{16}$$

|         |                |   |
|---------|----------------|---|
| 2 - ʊ   | <u>Book</u>    | 156-405 Hz (yellow none yellow)   |
| 3 - uː  | <u>too</u>     | 139-440 Hz (starting end of decay) and 170-276 Hz (end of decay)<br>yellow greenish |
| 4 - Iə  | <u>here</u>    | 112-162 Hz greenish and 227-292 Hz yellow and 344-394 greenish and 448-511 greenish |
| 5 - eɪ  | <u>Day</u>     | 435-513 Hz yellow   |
| 6 - e   | <u>men</u>     | 557-596 yellowish and 637-703 Hz greenish   |
| 7 - ə   | <u>America</u> | 545-598 Hz yellow or 536-603 yellow-green   |
| 8 - ɜː  | <u>Word</u>    | 461-537 Hz yellowish  |
| 9 - ɔː  | <u>sort</u>    | 425-465 Hz yellow   |
| 10 - ʊə | <u>tour</u>    | 293-364 Hz yellow   |
| 11 - ɔɪ | <u>Boy</u>     | 392-440 Hz yellow and 440-494 Hz greenish   |
| 12 - əʊ | <u>go</u>      | 453-507 Hz greenish   |
| 13 - æ  | <u>cat</u>     | 755-881 Hz yellow (heavy curvature) and 1464-1576 Hz greenish                       |
| 14 - ʌ  | <u>but</u>     | 480-619 Hz yellow   |
| 15 - aː | <u>part</u>    | 508-547 Hz greenish   |
| 16 - ɒ  | <u>not</u>     | 482-533 Hz yellow and 540-662 Hz yellow Or 487-653 Hz yellowish                     |
| 17 - eə | <u>wear</u>    | 498-572 light green and 545-614 light green   |
| 18 - aɪ | <u>my</u>      | 223-260 Hz skyblue and 567-624 green and 1090-1139 Hz greenish<br>707-754 skyblue   |
| 19 - aʊ | <u>how</u>     | 533-593 Hz yellow-greenish and 706-752 Hz yellowish                                 |

## Vowels

| Phoneme | IPA Symbol | Graphemes  | Examples   |
|---------|------------|--|--|
| ✓ 25    | æ          | a, ai, au  | cat, plaid, laugh  |
| ✓ 26    | eɪ         | a, ai, eigh, aigh, ay, er, et, ei, au, a_e, ea, ey | bay, maid, weigh, straight, pay, foyer, filet, eight, gauge, mate, break, they |
| ✓ 27    | e          | e, ea, u, ie, ai, a, eo, ei, ae                    | end, bread, bury, friend, said, many, leopard, heifer, aesthetic               |
| 28      | i:         | e, ee, ea, y, ey, oe, ie, i, ei, eo, ay            | be, bee, meat, lady, key, phoenix, grief, ski, deceive, people, quay           |
| 29      | ɪ          | i, e, o, u, ui, y, ie                              | it, england, women, busy, guild, gym, sieve                                    |
| ✓ 30    | aɪ         | i, y, igh, ie, uy, ye, ai, is, eigh, i_e           | spider, sky, night, pie, guy, stye, aisle, island, height, kite                |
| 31      | ɒ          | a, ho, au, aw, ough                                | swan, honest, maul, slaw, fought   |
| 32      | oʊ         | o, oa, o_e, oe, ow, ough, eau, oo, ew              | open, moat, bone, toe, sow, dough, beau, brooch, sew                           |
| 33      | ʊ          | o, oo, u,ou  | wolf, look, bush, would  |
| 34      | ʌ          | u, o, oo, ou                                       | lug, monkey, blood, double   |
| 35      | u:         | o, oo, ew, ue, u_e, oe, ough, ui, oew, ou          | who, loon, dew, blue, flute, shoe, through, fruit, manoeuvre, group            |
| 36      | ɔɪ         | oi, oy, uoy  | join, boy, buoy  |
| 37      | aʊ         | ow, ou, ough                                       | now, shout, bough  |
| 38      | ə          | a, er, i, ar, our, ur                              | about, ladder, pencil, dollar, honour, augur                                   |
| 39      | eəʳ        | air, are, ear, ere, eir, ayer                      | chair, dare, pear, where, their, prayer  |
| 40      | ɑ:         | a  | arm  |
| 41      | ɜ:ʳ        | ir, er, ur, ear, or, our, yr                       | bird, term, burn, pearl, word, journey, myrtle                                 |
| 42      | ɔ:         | aw, a, or, oor, ore, oar, our, augh, ar, ough, au  | paw, ball, fork, poor, fore, board, four, taught, war, bought, sauce           |
| 43      | ɪəʳ        | ear, eer, ere, ier                                 | ear, steer, here, tier   |
| 44      | ʊəʳ        | ure, our   | cure, tourist  |