



```
#define analogInPin1 A3
```

```
#define analogInPin2 A4
```

```
#define analogInPin3 A5
```

```
#define speaker 8
```

```
#define EASY 2
```

```
#define MED 3
```

```
#define HARD 4
```

```
#define merah 5
```

```
#define hijau 6
```

```
int sensorValue1 = 0;
```

```
int sensorValue2 = 0;
```

```
int sensorValue3 = 0;

int easyques[4]={};

int easyanswer[4]={};

int medques[4]={};

int medanswer1[4]={};

int medanswer2[4]={};

int hardques[4]={};

int hardanswer1[4]={};

int hardanswer2[4]={};

int hardanswer3[4]={};

int i,j,k;


int frequency[] = {262, 278, 294, 312, 330, 349, 371, 392,
                   416, 440, 467, 493, 523, 554, 587, 622,
                   660, 698, 739, 783, 830, 880, 932, 987, 1046};


int upperLimit[] = {50, 150, 300, 450, 650,
                   800, 900, 960, 1000};


int lowerLimit[] = {0, 51, 151, 301, 451,
                   651, 801, 901, 961};


void setup() {

    pinMode (EASY,INPUT);
```

```
pinMode (MED,INPUT);  
  
pinMode (HARD,INPUT);  
  
pinMode (speaker, OUTPUT);  
  
pinMode (hijau, OUTPUT);  
  
pinMode (merah, OUTPUT);  
  
Serial.begin(9600);  
  
}
```

```
void loop() {  
  
  if(digitalRead(EASY)== LOW){  
  
    easyquestion();  
  
    easyquestioncheck();  
  
  }  
  
  else if(digitalRead(MED)== LOW){  
  
    medquestion();  
  
    medquestioncheck();  
  
  }  
  
  else if(digitalRead(HARD)== LOW){  
  
    hardquestion();  
  
    hardquestioncheck();  
  
  }  
  
  else {  
  
    readMelody();  
  
  }  
  
}
```

```
//Serial.print("Value1 = ");  
//Serial.println(sensorValue1);  
//Serial.print("Value2 = ");  
//Serial.println(sensorValue2);  
//Serial.print("Value3 = ");  
//Serial.println(sensorValue3);  
Serial.println(frequency[i]);  
}
```

```
void readMelody() {  
    sensorValue1 = analogRead(analogInPin1);  
    for(int i = 0; i<8; i++)  
    {  
        if (sensorValue1 < upperLimit[i] && sensorValue1 >= lowerLimit[i]){  
            tone(speaker,frequency[i],60);  
        }  
    }  
    sensorValue2 = analogRead(analogInPin2);  
    for(int i = 0; i<8; i++)  
    {  
        if (sensorValue2 < upperLimit[i] && sensorValue2 >= lowerLimit[i]){  
            tone(speaker,frequency[i+8],60);  
        }  
    }  
}
```

```

sensorValue3 = analogRead(analogInPin3);

for(int i = 0; i<9; i++)
{
    if (sensorValue3 < upperLimit[i] && sensorValue3 >= lowerLimit[i]){

        tone(speaker,frequency[i+16],60);

    }
}

}

```

```

void easyquestion(){

    for(int j =0;j<4;j++){

        digitalWrite(speaker,HIGH);

        int randomfrequency = frequency[random(7)];

        easyques[j]=randomfrequency;

        tone(speaker,randomfrequency,300);

        digitalWrite(speaker,LOW);

        delay(500);

        Serial.println(easyques[j]);

    }

}

```

```

void easyquestioncheck(){

    for(k =0;k<4;k++){

        sensorValue1=1023;

```

```

while (sensorValue1==1023){
    sensorValue1 = analogRead(analogInPin1);
    for(i = 0; i<8; i++)
    {
        if (sensorValue1 < upperLimit[i] && sensorValue1 >= lowerLimit[i]){
            tone(speaker,frequency[i],60);
            easyanswer[k]=frequency[i];
        }
    }
}

if(easyanswer[k] == easyques[k]){
    digitalWrite(hijau,HIGH);
    delay(200);
    digitalWrite(hijau,LOW);
}

if(easyanswer[k] != easyques[k]){
    digitalWrite(merah,HIGH);
    delay(200);
    digitalWrite(merah,LOW);
}
}

```

```

void medquestion(){
    for(int j =0;j<4;j++){

```

```

digitalWrite(speaker,HIGH);

int randomfrequency = frequency[random(15)];

medques[j]=randomfrequency;

tone(speaker,randomfrequency,300);

digitalWrite(speaker,LOW);

delay(500);

Serial.println(medques[j]);

}

}

void medquestioncheck(){

for(k =0;k<4;k++){

sensorValue1=1023;

sensorValue2=1023;

while (sensorValue1==1023&&sensorValue2==1023){

sensorValue1 = analogRead(analogInPin1);

for(i = 0; i<8; i++)

{

if (sensorValue1 < upperLimit[i] && sensorValue1 >= lowerLimit[i]){

tone(speaker,frequency[i],60);

medanswer1[k]=frequency[i];

}

sensorValue2 = analogRead(analogInPin2);

for(int i = 0; i<8; i++)

{

```

```

        if (sensorValue2 < upperLimit[i] && sensorValue2 >= lowerLimit[i]){

            tone(speaker,frequency[i+8],60);

            medanswer2[k]=frequency[i+8];

        }

    }

}

if(medanswer1[k] == medques[k] || medanswer2[k] == medques[k]){

    digitalWrite(hijau,HIGH);

    delay(200);

    digitalWrite(hijau,LOW);

}

if(medanswer1[k] != medques[k]&& medanswer2[k] != medques[k]){

    digitalWrite(merah,HIGH);

    delay(200);

    digitalWrite(merah,LOW);

}

}

}

void hardquestion(){

    for(int j =0;j<4;j++){

        digitalWrite(speaker,HIGH);

        int randomfrequency = frequency[random(24)];

        hardques[j]=randomfrequency;
    }
}

```



```

    tone(speaker,randomfrequency,300);

    digitalWrite(speaker,LOW);

    delay(500);

    Serial.println(hardques[j]);
}

}

void hardquestioncheck(){

for(k =0;k<4;k++){

    sensorValue1=1023;

    sensorValue2=1023;

    sensorValue3=1023;

    while (sensorValue1==1023&&sensorValue2==1023&&sensorValue3==1023){

        sensorValue1 = analogRead(analogInPin1);

        for(i = 0; i<8; i++)

        {

            if (sensorValue1 < upperLimit[i] && sensorValue1 >= lowerLimit[i]){

                tone(speaker,frequency[i],60);

                hardanswer1[k]=frequency[i];

            }

            sensorValue2 = analogRead(analogInPin2);

            for(int i = 0; i<8; i++)

            {

                if (sensorValue2 < upperLimit[i] && sensorValue2 >= lowerLimit[i]){

                    tone(speaker,frequency[i+8],60);

```

```

        hardanswer2[k]=frequency[i+8];
    }
}

sensorValue3 = analogRead(analogInPin3);

for(int i = 0; i<9; i++)
{
    if (sensorValue3 < upperLimit[i] && sensorValue3 >= lowerLimit[i]){

        tone(speaker,frequency[i+16],60);

        hardanswer3[k]=frequency[i+16];

    }
}

}

if(hardanswer1[k] == hardques[k] || hardanswer2[k] == hardques[k] || hardanswer3[k] ==
hardques[k]){

    digitalWrite(hijau,HIGH);

    delay(200);

    digitalWrite(hijau,LOW);

}

if(hardanswer1[k] != hardques[k]&& hardanswer2[k] != hardques[k]&& hardanswer3[k] !=
hardques[k]){

    digitalWrite(merah,HIGH);

    delay(200);

    digitalWrite(merah,LOW);

}
}

```

}