שאלה 1.

XML

```
<exhibition>
	<gallery-name>galileo art</gallery-name>
	<locate>the third floor in the fifth building </locate>
	<exhibition-name>stars</exhibition-name>
	<theme>planets</theme>
	<curator>דניאלה ארץ</curator>
	<items>
		<item>
			<item-type>picture</item-type>
			<item-name>Venus</item-name>
			<artist-name>נגה ס</artist-name>
			<sides>
				<rectangle>
					<length>200cm<length>
					<width>100cm</width>
				</rectangle>
			</sides>
		</item>
		<item>
			<item-type>picture</item-type>
			<item-name>Mars</item-name>
			<artist-name>מ אדום</artist-name>
			<sides>
				<circle>
					<radius>62.5cm<radius>
				</circle>
			</sides>
		</item>
	</items>
</exhibition>
```

JSON

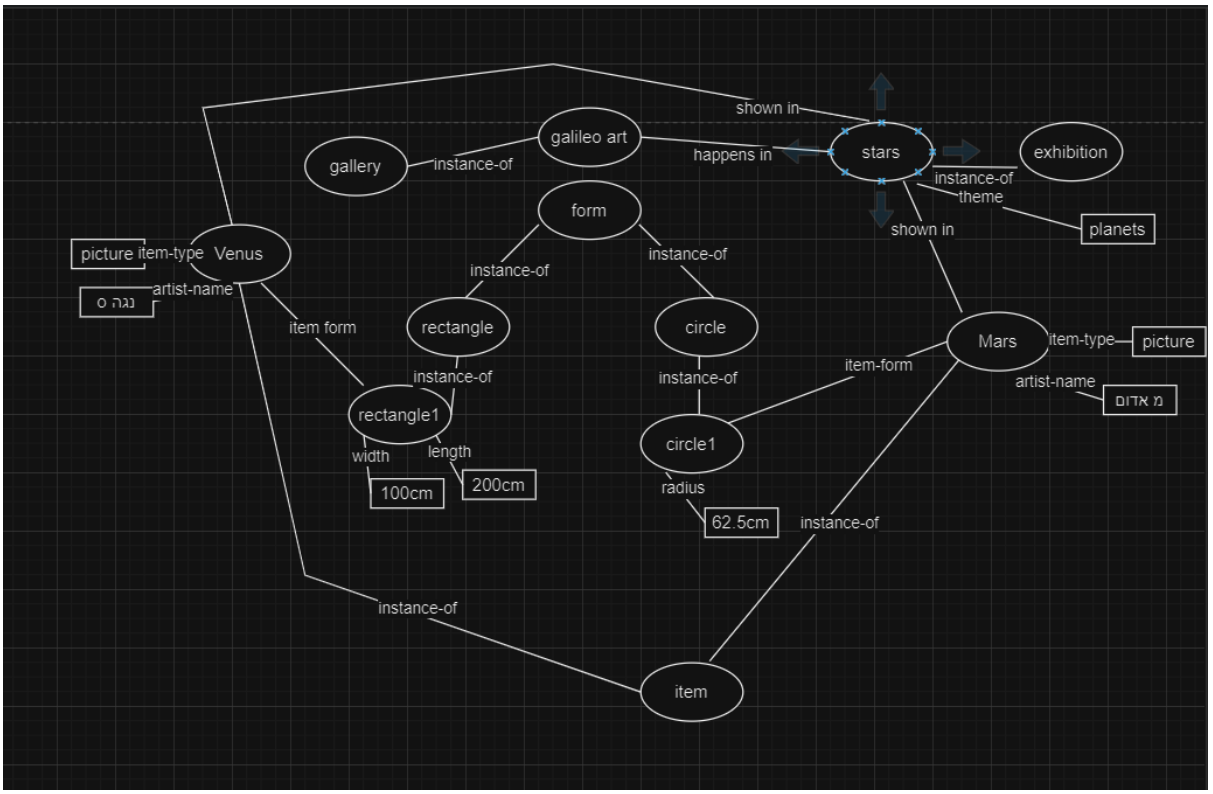
```
{"gallery-name": "galileo art",
 "locate":"the third floor in the fifth building",
 "exhibition-name":"stars",
 "theme":"planets",
 "curator":"דניאלה ארץ",
 "items": {"first_item":{"item-type":"picture",
                         "item-name":"Venus",
                         "artist-name":"נגה ס",
                         "sides":{"rectangle-sides":{"length":"200cm",
                                                     "width":"100cm"
                                                    },
                                  },
                                 },
             "second_item":{"item-type":"picture",
                         "item-name":"Mars",
                         "artist-name":"אדום מ",
                         "sides":{"circle":{"radius":"62.5cm",

                                                    },
                                  },
                                 }
             }
}
```

RDF

"galileo art", instance-of, gallery
"galileo art", locate, "the third floor in the fifth building"
"stars", instance-of, exhibition
"stars" happens in "galileo art"
"stars" theme "planets"
"stars" curator "דניאלה ארץ"
"Venus" instance-of item
"Venus" item-type "picture"
"Venus" artist-name "נגה ס"
"Venus" shown in "stars"
"Venus" item-form rectangle1
rectangle1 instance-of rectangle
rectangle1 length "200cm"
rectangle1 width "100cm"
"Mars" instance-of item
"Mars" item-type "picture"
"Mars" artist-name "אדום מ"
"Mars" shown in "stars"

"Mars" item-form circle1
circle1 instance-of circle
circle1 radius "62.5cm"
circle instance-of form
rectangle instance-of form

RDF GRAF



2. א. select ?pname ?chid

where {
?r chid ?chid
?pid pname ?pname
?pid pin ?r
?kno kin ?r
?kno edate “27.3.2023”}

ב. select ?kno ?pname

where {
?pid pname ?pname
?pid pin ?r
?kno kin ?r
?kno instance-of knesset
}

3.נבצע את תהליך החישוב.

TF(d1, tables) = log(1+35/250) = 0.056

TF(d2, tables) = log(1+10/150) = 0.028
TF(d1, chairman) = log(1+15/250) = 0.025
TF(d2, chairman) = log(1+30/150) = 0.079
IDF(tables) = 0.25
IDF(chairman) = 1/6
TF-IDF(d1, Query) = 0.056*0.25+0.025*1/6 = 0.018
TF-IDF(d2, Query) = 0.028*0.25+0.079*1/6 = 0.0201
ולכן המסמך d2 הוא המסמך אשר ידורג גבוה יותר.

4. נייצר את המטריצה הרלוונטית לנו

	1	2	3
1	0	1	0
2	0.5	0	0.5
3	1	0	0

ולכן כפי שידוע N=3, למדא שווה 0.18 ולכן למדא חלקי N נותן 0.06
P[1] = 0.06 +0.82 * (P[3] + 0.5 P[2])
P[2] = 0.06 + 0.82 * P[1]
P[3] = 0.06 + 0.82 * 0.5 P[2]

כעת נתחיל להריץ את האיטרציות כאשר הערך ההתחלתי של כל דף הינו 0.33.
איטרציה ראשונה:
P[1] = 0.06 + 0.82*(0.33+0.16666667) = 0.47
P[2] = 0.06 +0.82*0.33 = 0.333
P[3] = 0.06 + 0.82 * 1/6 = 0.196
איטרציה שנייה:
P[1] = 0.06 + 0.82 *(0.196 + 0.5*0.33333) = 0.357
P[2] = 0.06 +0.82 * 0.47 = 0.445
P[3] = 0.06 + 0.82*0.5*0.333333 = 0.196

לפי חישוב זה הדף אשר יהיה בדירוג הנמוך ביותר הינו דף מספר 3