Calendar of 13 Months

Subjects: Others | Others

Contributor: Claude El-Bayeh

Has anyone of us missed an event because he was confused between days and dates? Do we really remember the date of any day if we do not have a calendar? Is the current Gregorian Calendar efficient enough for use, and does it really facilitate our life or make it more complicated? Have you ever thought about a much simpler way to calculate days and dates in a year? All these questions are answered in this article, in which the author proposes an original calendar that might facilitate our lives if we can apply it.

Gregorian Calendar | 13 Month Calendar | Weekly-based Year | Original Calendar

1. Introduction

In modern times, most of the countries in the world use "**Gregorian calendar**" in their daily life, and every event, holiday are based on this calendar system[1][2]. It is introduced in October 1582 by Pope Gregory XIII. In the **Gregorian Calendar**, a year is composed of 12 months. Each month has a different number of days. For example, January has 31 days, February has 28 days, and sometimes 29, April has 30 days, and so on. Sometimes, the dates become confusing especially when a particular day like Monday, is the first day in a month, and the second or even the seventh in another month, sometimes holidays which are on a specific date such as 24 December, could be located during the weekdays (e.g., in 2019), while it can be in weekends in another year (e.g., 2022). It appears that the existing calendar system becomes a little bit confusing for most of us, and we need something much easier to handle and more practical to rely on.

What happens if we create a more organized Calendar in which the days and dates in a month do not change? For example, Monday will always be the first day of any month. The holidays will have the same dates and days in a year. For example, 24 December will always be on Wednesday every year and so on. Do we think that this method might be easier to memorize and to use? Moreover, humans always develop and invent new things every day to facilitate their lives. So why not developing an easier way to count days, weeks, and months in a year?

In this article, the author proposes a calendar year of 14 months instead of 12, in which each month of the first thirteen contains exactly 28 days. In total, we have 364 days for the first thirteen months. The remaining days (number 365, and 366 in a leap year) will be added to the fourteenth month. The advantages and disadvantages of the proposed Calendar are stated in this paper.

2. Materials Methods and Development

A year on earth has approximately 365.2425 days and 12 months according to the Gregorian Calendar. Each month has almost between 28 and 31 days. In the current Gregorian Calendar, a year has nearly 52.1428 weeks. A week always starts on a specific day (such as Monday). However, the date of the day is different from a year to another. For example, the first day in January 2020, is Wednesday, while it is Friday in 2021. Moreover, the first day of each month also changes. For instance, the first day in January 2020 is Wednesday, while it is Saturday in February 2020, and Sunday in March 2020. Christmas in 2020 is on Thursday 20, while it is on Friday 24 in 2021.

It becomes more complicated when a leap year is added every four years, and an additional day is added to the month of February, which becomes equal to 29 days instead of 28 every four years. In this article, we suggest a new calendar system weekly-based in which it has 14 months to minimize the complexity. In order to create such Calendar, we should follow the mentioned steps as below:

- We start to define a week. A week has only 7 days, and it always starts on Monday.
- The first 13 months have exactly 4 weeks, in which the total number of days becomes equal to 28 only (7 days x 4 weeks)
- The first 13 months have precisely the same number of days, and they start exactly with the same day (Monday) and end with the same day (Sunday)
- The number of days in the first 13 months cannot change even during a leap year. They are always fixed to 28 days per month, whatever is the year.
- The number of weeks in a year is fixed to 52. In fact, the number of weeks should be 52.1428 (365 days / 7 days = 52.1428); however, we approximate it to 52 for simplicity
- After doing all these calculations, the total number of days in a year becomes equal to 364 days per year (52 weeks per year x 7 days per week).
- The remaining days of the year are named “**Yeardays,”** and they are added to the last month of the year (month number 14). Practically, the last month has only 1 or 2 days. This method will solve lots of problems. For example, day number 365 is called “Yearday 1”, which is the end of a year and it is not included in any month or week. For the case of a leap year, day number 366 is called “Yearday 2”, in this way the Calendar doesn’t change. An example is shown in the following tables.

Normal Year									Next Year	
Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Yearday 1	Monday	Tuesday

number	358	359	360	361	362	363	364	365	1	2

Leap Year										Next year
Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Yearday 1	Yearday 2	Monday
number	358	359	360	361	362	363	364	365	366	1

3. Results and Discussions

If we elaborate on all the above steps, we can create a new calendar year, which has the following form:

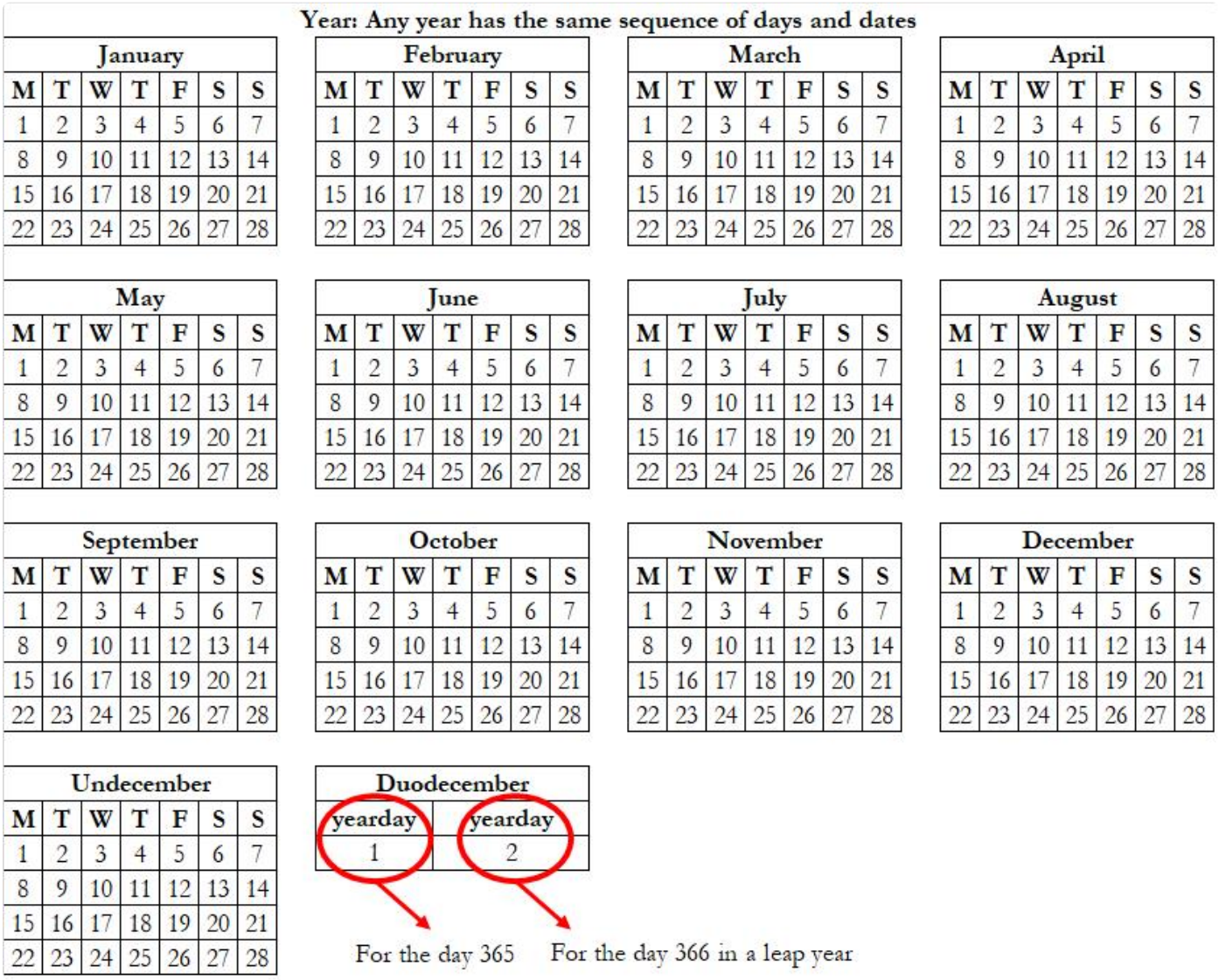

Figure 1: Proposed Calendar with 14 months in a year and 28 days in a month.

The number of days in a sequence in a calendar year will also have the following form:

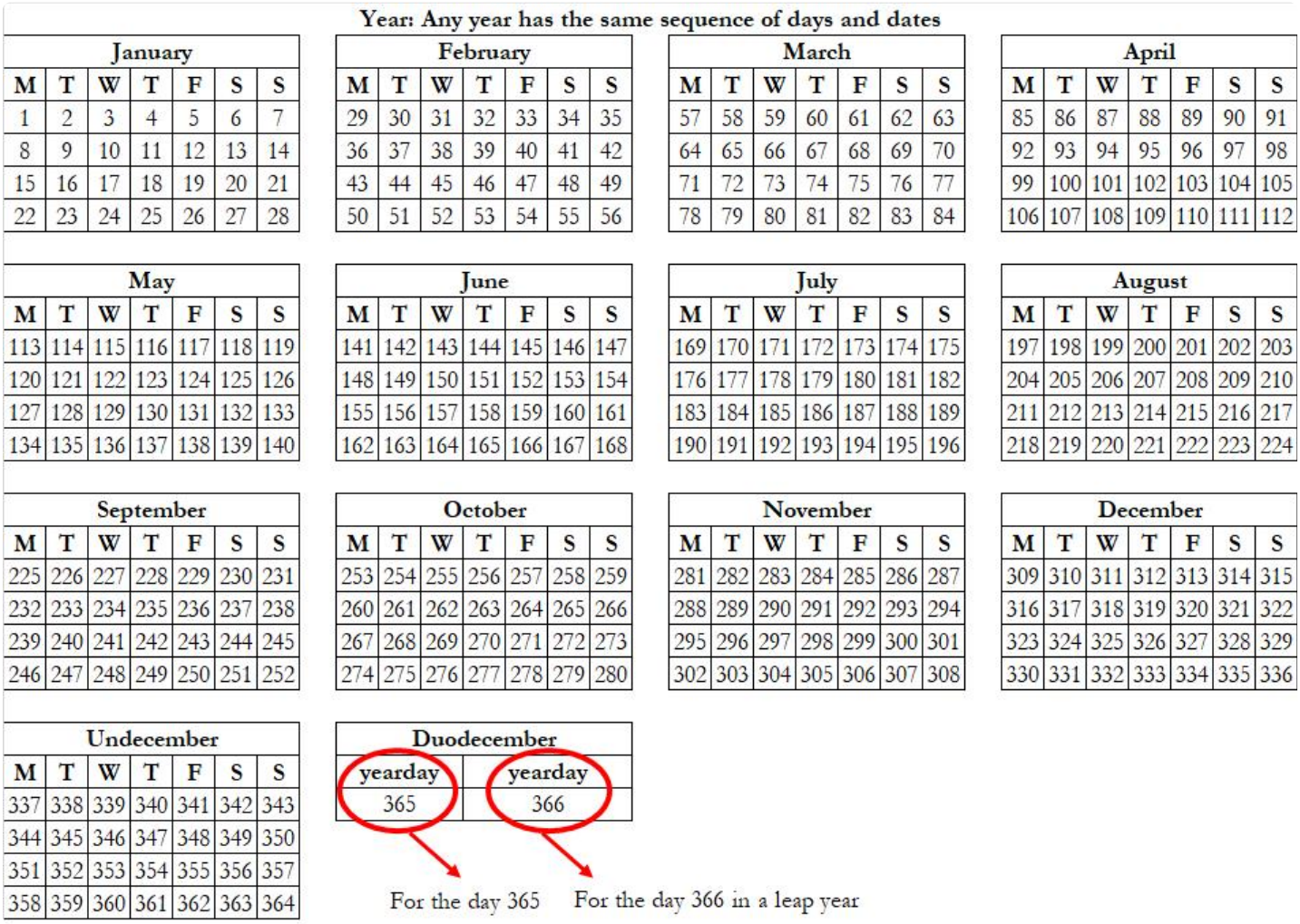

Figure 2: Sequence numbering of days in the proposed Calendar.

The following Figures compare the Gregorian Calendar to the proposed one in this article.

The proposed Calendar based on 14 Months

Year: Any year has the same sequence of days and dates

January

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

February

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

March

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

April

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

May

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

June

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

July

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

August

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

September

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

October

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

November

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

December

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Undecember

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Duodecember

Yearday	Yearday
1	2
For the day 365	For the day 366 in a leap year

Gregorian Calendar

Only for the year 2020, the dispalcement of dates and days change from year to year

January 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

March 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

June 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Figure 3: Comparison between the proposed Calendar and the Gregorian Calendar for the year 2020.

The proposed Calendar based on 14 Months

Year: Any year has the same sequence of days and dates

January

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

February

Mon	Tue	Wed	Thu	Fri	Sat	Sun
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49
50	51	52	53	54	55	56

March

Mon	Tue	Wed	Thu	Fri	Sat	Sun
57	58	59	60	61	62	63
64	65	66	67	68	69	70
71	72	73	74	75	76	77
78	79	80	81	82	83	84

April

Mon	Tue	Wed	Thu	Fri	Sat	Sun
85	86	87	88	89	90	91
92	93	94	95	96	97	98
99	100	101	102	103	104	105
106	107	108	109	110	111	112

May

Mon	Tue	Wed	Thu	Fri	Sat	Sun
113	114	115	116	117	118	119
120	121	122	123	124	125	126
127	128	129	130	131	132	133
134	135	136	137	138	139	140

June

Mon	Tue	Wed	Thu	Fri	Sat	Sun
141	142	143	144	145	146	147
148	149	150	151	152	153	154
155	156	157	158	159	160	161
162	163	164	165	166	167	168

July

Mon	Tue	Wed	Thu	Fri	Sat	Sun
169	170	171	172	173	174	175
176	177	178	179	180	181	182
183	184	185	186	187	188	189
190	191	192	193	194	195	196

August

Mon	Tue	Wed	Thu	Fri	Sat	Sun
197	198	199	200	201	202	203
204	205	206	207	208	209	210
211	212	213	214	215	216	217
218	219	220	221	222	223	224

September

Mon	Tue	Wed	Thu	Fri	Sat	Sun
225	226	227	228	229	230	231
232	233	234	235	236	237	238
239	240	241	242	243	244	245
246	247	248	249	250	251	252

October

Mon	Tue	Wed	Thu	Fri	Sat	Sun
253	254	255	256	257	258	259
260	261	262	263	264	265	266
267	268	269	270	271	272	273
274	275	276	277	278	279	280

November

Mon	Tue	Wed	Thu	Fri	Sat	Sun
281	282	283	284	285	286	287
288	289	290	291	292	293	294
295	296	297	298	299	300	301
302	303	304	305	306	307	308

December

Mon	Tue	Wed	Thu	Fri	Sat	Sun
309	310	311	312	313	314	315
316	317	318	319	320	321	322
323	324	325	326	327	328	329
330	331	332	333	334	335	336

Undecember

Mon	Tue	Wed	Thu	Fri	Sat	Sun
337	338	339	340	341	342	343
344	345	346	347	348	349	350
351	352	353	354	355	356	357
358	359	360	361	362	363	364

Duodecember

Yearday	Yearday
365	366
For the day 365	For the day 366 in a leap year

Gregorian Calendar

Only for the year 2020, the dispalcement of dates and days change from year to year

January 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						32
33	34	35	36	37	38	39
40	41	42	43	44	45	46
47	48	49	50	51	52	53
54	55	56	57	58	59	60

March 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
61	62	63	64	65	66	67
68	69	70	71	72	73	74
75	76	77	78	79	80	81
82	83	84	85	86	87	88
89	90	91				

April 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			92	93	94	95
96	97	98	99	100	101	102
103	104	105	106	107	108	109
110	111	112	113	114	115	116
117	118	119	120	121		

May 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					122	123
124	125	126	127	128	129	130
131	132	133	134	135	136	137
138	139	140	141	142	143	144
145	146	147	148	149	150	151
152						

June 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	153	154	155	156	157	158
159	160	161	162	163	164	165
166	167	168	169	170	171	172
173	174	175	176	177	178	179
180	181	182				

July 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			183	184	185	186
187	188	189	190	191	192	193
194	195	196	197	198	199	200
201	202	203	204	205	206	207
208	209	210	211	212	213	

August 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						214
215	216	217	218	219	220	221
222	223	224	225	226	227	228
229	230	231	232	233	234	235
236	237	238	239	240	241	242
243	244					

September 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		245	246	247	248	249
250	251	252	253	254	255	256
257	258	259	260	261	262	263
264	265	266	267	268	269	270
271	272	273	274			

October 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				275	276	277
278	279	280	281	282	283	284
285	286	287	288	289	290	291
292	293	294	295	296	297	298
299	300	301	302	303	304	305

November 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
306	307	308	309	310	311	312
313	314	315	316	317	318	319
320	321	322	323	324	325	326
327	328	329	330	331	332	333
334	335					

December 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		336	337	338	339	340
341	342	343	344	345	346	347
348	349	350	351	352	353	354
355	356	357	358	359	360	361
362	363	364	365	366		

Figure 4: Comparison between the sequence numbering of the days in a year for the proposed Calendar and the Gregorian Calendar for the year 2020.

From the above Figures, it is clear that the proposed Calendar in this paper has a more systematic organization of the days in a week, month, and year. The first day of a month always starts on Monday, and the last day of each

month is always Sunday. Therefore, counting days becomes an easy task, and there is no need for complex algorithms to predict the days and dates in previous years.

The calculation of the date for a specific day is straightforward and can be done using the following proposed equations:

$$\begin{cases} Monday = 1 + 7 * (w - 1) \\ Tuesday = 2 + 7 * (w - 1) \\ Wednesday = 3 + 7 * (w - 1) \\ Thursday = 4 + 7 * (w - 1) \\ Friday = 5 + 7 * (w - 1) \\ Saturday = 6 + 7 * (w - 1) \\ Sunday = 7 + 7 * (w - 1) \end{cases} \begin{cases} where\ w \in [1, 4]\ in\ a\ month \\ and\ w \in [1, 52]\ in\ a\ year \end{cases}$$

and

$$Yearday1 = 365$$
$$Yearday2 = 365 (just\ in\ the\ case\ of\ a\ leap\ year)$$

Where w is the week number in a month (w in [1,4]) or a year (w in [1,52]).

Example:

Calculate the date of the Monday in the third week of a month and check it on the Calendar to see if it is correct.

Answer:

Monday=1+7(w-1)=1+7(3-1)=15

March						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Example:

Calculate the day number of Wednesday located on the 36th week of the year, and check it on the Calendar to see if it is correct.

Answer:

Wednesday=3+7(w-1)=3+7(36-1)=248

July						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
169	170	171	172	173	174	175
176	177	178	179	180	181	182
183	184	185	186	187	188	189
190	191	192	193	194	195	196

August						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
197	198	199	200	201	202	203
204	205	206	207	208	209	210
211	212	213	214	215	216	217
218	219	220	221	222	223	224

September						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
225	226	227	228	229	230	231
232	233	234	235	236	237	238
239	240	241	242	243	244	245
246	247	248	249	250	251	252

October						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
253	254	255	256	257	258	259
260	261	262	263	264	265	266
267	268	269	270	271	272	273
274	275	276	277	278	279	280

To conclude the study, a comparative table between the proposed Calendar and the Gregorian Calendar shows the advantages and disadvantages of each system.

Description	Proposed Calendar	Gregorian Calendar
Number of days in the weekends per year	Up to 106	Up to 104
Number of payable months	13	12
Complexity of the system	easy	Complex
Computation time	Very low	Very high[3]
Time wasted just to see the day and date on a calendar	Very low	Very high

Do we really need a Calendar to check the dates	No	Yes

In this entry, the author proposes an original calendar based on 14 months instead of 12. Each of the first thirteen months has exactly 28 days. The last month has only 1 or 2 days, and it is added in purpose to facilitate the calculation considering the standard (ISO 8601). The new Calendar is much easier to understand and calculate. We do not need complex algorithms to calculate the dates and days in a year. Moreover, the proposed Calendar fixes the days and their dates in a month and year. Therefore, the dates will be the same whatever is the year, contrary to the Gregorian Calendar. Are we able to apply this new Calendar in our daily life? Does it seem logical to try it and see what it can change in our life? The author asks the readers to share their comments and suggestions. [1][2][3]

References

1. C. A. Ronan, "The Gregorian Calendar," The New Encyclopaedia Britannica, pp. 602-603.
2. E. L. Cohen, "Adoption and reform of the Gregorian calendar," Math Horizons, vol. 7, no. 3, pp. 5-11, 2000.
3. N. Dershowitz and E. M. Reingold, "Calendrical calculations," Software: Practice and Experience, vol. 20, no. 9, pp. 899-928, 1990.

Retrieved from https://encyclopedia.pub/entry/history/show/89998